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TEACHER'S MANUAL FOR EXPANSION OF THE PHRASE STRUCTURE RULES AND
SINGLE-BASE TRANSFORMATIONS--LANGUAGE CURRICULUM II.

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A MANUAL WAS PREPARED FOR EXPANSION OF PHRASE STRUCTURE RULES AND SINGLE-BASE TRANSFORMATIONS IN EIGHTH-GRADE LANGUAGE CURRICULUM. THE MANUAL INCREASED THE 28 PHRASE STRUCTURE RULES PREVIOUSLY PRESENTED (ED 010 146, ED 010 148, AND ED 010 152). BACKGROUND INFORMATION AND GUIDES FOR THE TEACHER WERE PRESENTED FOR UNITS OF STUDY IN PHRASE STRUCTURE RULES, DOUBLE-BASE TRANSFORMATIONS, AND SINGLE-BASE TRANSFORMATIONS. ACCOMPANYING STUDENT EXERCISES WERE EXPLAINED WITH DIAGRAMMED SOLUTIONS. THE MANUAL FOR TEACHERS WAS KEYED TO A MANUAL FOR STUDENTS (ED 010 153).

OREGON CURRICULUM STUDY CENTER

**TEACHER'S MANUAL
for
EXPANSION OF THE
PHRASE STRUCTURE RULES
and
SINGLE BASE
TRANSFORMATIONS**

Language Curriculum II

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EXPANSION OF THE PHRASE STRUCTURE RULES

The purpose in the first section of this unit is to add to the Phrase Structure rules in order to account for some of the basic constituents of the English sentence which were not handled in the first 18 rules. The unit contains two different kinds of expansions. The first two sections (those dealing with the place and time adverbials) present new versions of Rule 2, whereas the other two sections deal with new phrase structure rules entirely which, in effect, subdivide two of the five main verb classes.

At this point in the instruction, pupils should review two important facts about phrase structure rules and kernel sentences: 1) Kernel sentences, as we now know them, are produced by applying the eighteen phrase structure rules. 2) Since the original phrase structure rules are not complete (that is, they produce some ungrammatical sentences and they cannot produce some sentences which are truly kernel sentences), we must expand the rules. A complete grammar would produce all the grammatical sentences of English and only grammatical ones. Of course, the complete grammar may never be written, but each year we hope to add rules to account for more and more of the complexities of our language. Without expanding the phrase structure rules, we could not account for such things as time and place adverbials or the fact that some transitive verbs are followed by more than one NP.

As a teacher you are, of course, very much aware of the differences between phrase structure rules and transformation rules, and the reason for each. All elements which can be most economically accounted for in the phrase structure rules are put there and the result is what we term the kernel sentence. These sentences seem to correspond to what we intuitively feel to be the basic sentences of our language--those which enter into various transformations as units. A phrase structure rule expands a single item at a time. Transformations, on the other hand, operate on a string of elements which have been generated by the phrase structure.

The expansion which we will be writing will be numbered in this way: new versions of old rules will retain the number of the old rule, but they will simply rewrite them in a fuller form. Additional rules which expand a part of a previous rule will be labeled with the number of the previous rule followed by a decimal point and another number (Rules 8.1, or 10.1, for example).

Adverb of Place

The first expansion will deal with the adverb of Place, which is an optional element in kernel sentences. Sentences may have it, but need not. Rule 2 is thus recast as $VP \rightarrow Aux + Verb (Loc)$. Since Verb is a symbol which stands for the entire set of English verbs, the new rule states that all English verbs may be followed by a place adverbial. Perhaps you should point out that the place adverbial can be a single word or a phrase. Later we will find that it may also be another embedded kernel.

Adverb of Time

A second expansion will deal with the Time adverbial, which will be added to the phrase structure rules in the same way the Place adverbial was added. Since it can also occur with any English verb, the new element (Tm) is added to Rule 2 after the other optional element (Loc). The newly formed rule is cast as follows: VP → Aux + Verb (Loc) (Tm). Thus we see that an adverbial of time can occur in kernel sentences after any English verb and, if a place adverbial is also present in that kernel sentence, the time adverbial will follow it. Like the place adverbial, the time adverbial can be a single word or a phrase.

Active and Static Linking Verbs

An additional rule, not a re-formed rule, is needed for subdividing the class of verbs labeled Vlnk. Within this class of verbs are subclasses which behave quite differently from one another. The addition of a manner adverbial following the Pr serves as a test to differentiate two classes of linking verbs. Those linking verbs which permit the addition of such an adverbial are classified as Vlac. The letters ac in the symbol are a mnemonic device to remind the pupil that it is an active linking verb (e.g., become) that takes the manner adverbial. Those linking verbs which do not take the manner adverbial are labeled Vlst. The letters st indicate that it is a static linking verb (e.g., remain) that does not take the manner adverbial. Pupils may disagree about a few of the static linking verbs, especially verbs of sensation, such as taste, feel, sound, and smell. Some may feel that these verbs can take manner adverbials (e.g., "It smelled good gradually." or "This pop tastes flat quickly"). The additional rule thus divides linking verbs into two classes:

$$\text{Rule (8.1)} \quad \text{Vlnk} \longrightarrow \left\{ \begin{array}{l} \text{Vlac (Man)} \\ \text{Vlst} \end{array} \right\}$$

Adverb of Direction

Another verb class which can be divided into several subclasses is the one which has been labeled Vin. Within this class are verbs which can be followed by adverbials of direction. These adverbials, which have been labeled Dir, follow verbs of movement and answer the question to or toward what location. The directional adverbial, like adverbials of time and place, can be a single word or a phrase. The rule which separates intransitive verbs taking directional adverbials from all other intransitive verbs is written as follows:

$$\text{#Rule (10.1)} \quad \text{Vin} \longrightarrow \left\{ \begin{array}{l} \text{Vi} \\ \text{Vid (Dir)} \end{array} \right\}$$

The directional adverb immediately follows the verb. Thus, when the kernel sentence is generated by the new phrase structure rules, it will have a position preceding that of time and manner adverbials if they are also present in the string. For example,

Vid + Dir + Man + Tm Vid + Dir +
"He went into the room quickly then." and "They drove to New York
 Man + Tm
 |
 slowly in the evening.

Key to Student Version

ADVERB OF PLACE

Rule (2) VP → Aux + Verb (Loc)

Exercise 1: Page 1

Since these twenty sentences simply offer a comprehensive review of the original Phrase Structure Rules, adept students may not need to do both A and B. Four sentences in A (3, 5, 8, and 9) contain subject NPs, however, which should provoke interesting discussions.

A. 1. The + train + sing + pres + be + ing + come
The train is coming.

2. \$ + Junior + sing + pres + have + en + lose + the + key + sing
Junior has lost the key.

(Students should write the symbol to indicate a missing determiner.)

3. \$ + Mr. Jimson + sing + pres + understand + slow + ly
Mr. Jimson understands slowly.

(Titles, such as Mr. in this sentence and Ensign in Sentence 9 may be considered part of the noun.)

4. The + wind + sing + pres + be + quiet
The wind is quiet.

5. \$ + I + plur + pres + will + be + late.
We will be late.

At this point we derive the plural form of the first person pronoun according to the pattern established in Phrase Structure Rules but actually we is not the plurel of I: We doesn't mean "many I's."

6. The + movie + sing + pres + cost + a + dollar + sing
The movie costs a dollar.

7. The + catcher + sing + pres + must + have + en + drop +
The catcher must have dropped

the + ball + sing
the ball.

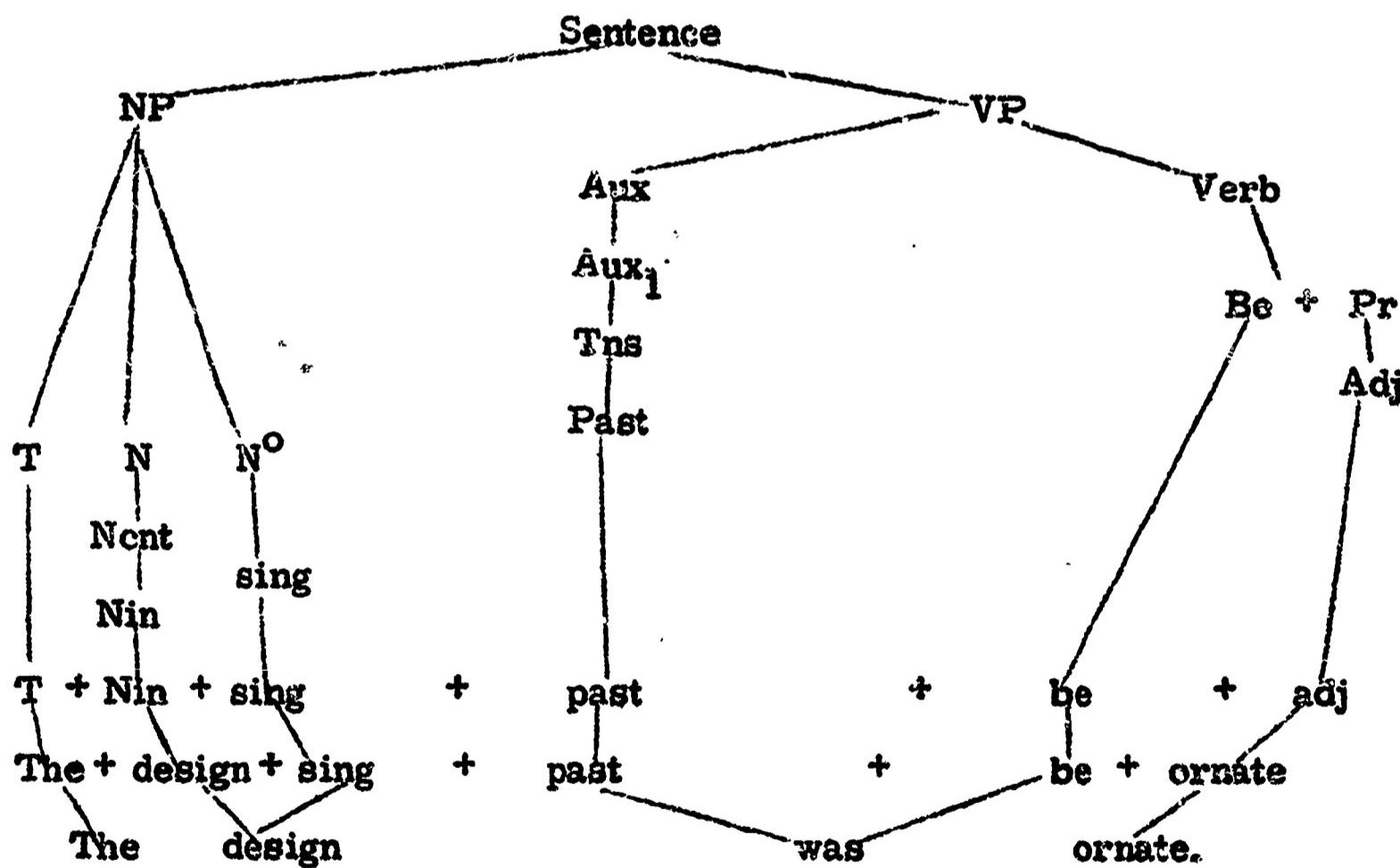
- # 8. The + townspeople + plur + past + have + en + hang + the + rustler + sing
The townspeople had hanged the rustler.
- # 9. Ø + Ensign Duffle + sing + past + be + ing + plan + the + mutiny + sing
Ensign Duffle was planning the mutiny.
10. The + butler + sing + past + can + have + en + be + here
The butler could have been here.
- E. 1. The + air + sing + past + have + en + become + smoky.
The air had become smoky.
2. The + Hayworth + plur + pres + be + ing + plan + a + party + sing
The Hayworths are planning a party.
3. Ø + Leprechaun + plur + pres + must + have + en + be + here
Leprechauns must have been here.
4. Ø + Everyone + sing + past + shall + have + en + bring + boot + plur
Everyone should have brought boots.
5. The + dough + sing + pres + will + rise + quick + ly
The dough will rise quickly.
6. This + drum + sing + pres + can + hold + the + chemical + plur
This drum can hold the chemicals.
7. Ø + Willie + sing + past + be + angry
Willie was angry.
8. The + album + sing + past + shall + have + en + have + a + title + sing
The album should have had a title.
9. The + marshmallow + sing + past + have + en + stay + soft
The marshmallow had stayed soft.
- # 10. Ø + People + plur + past + may + be + ing + grow + impatient
People might be growing impatient.

* (People is an example of a noun which appears only in the plural.)

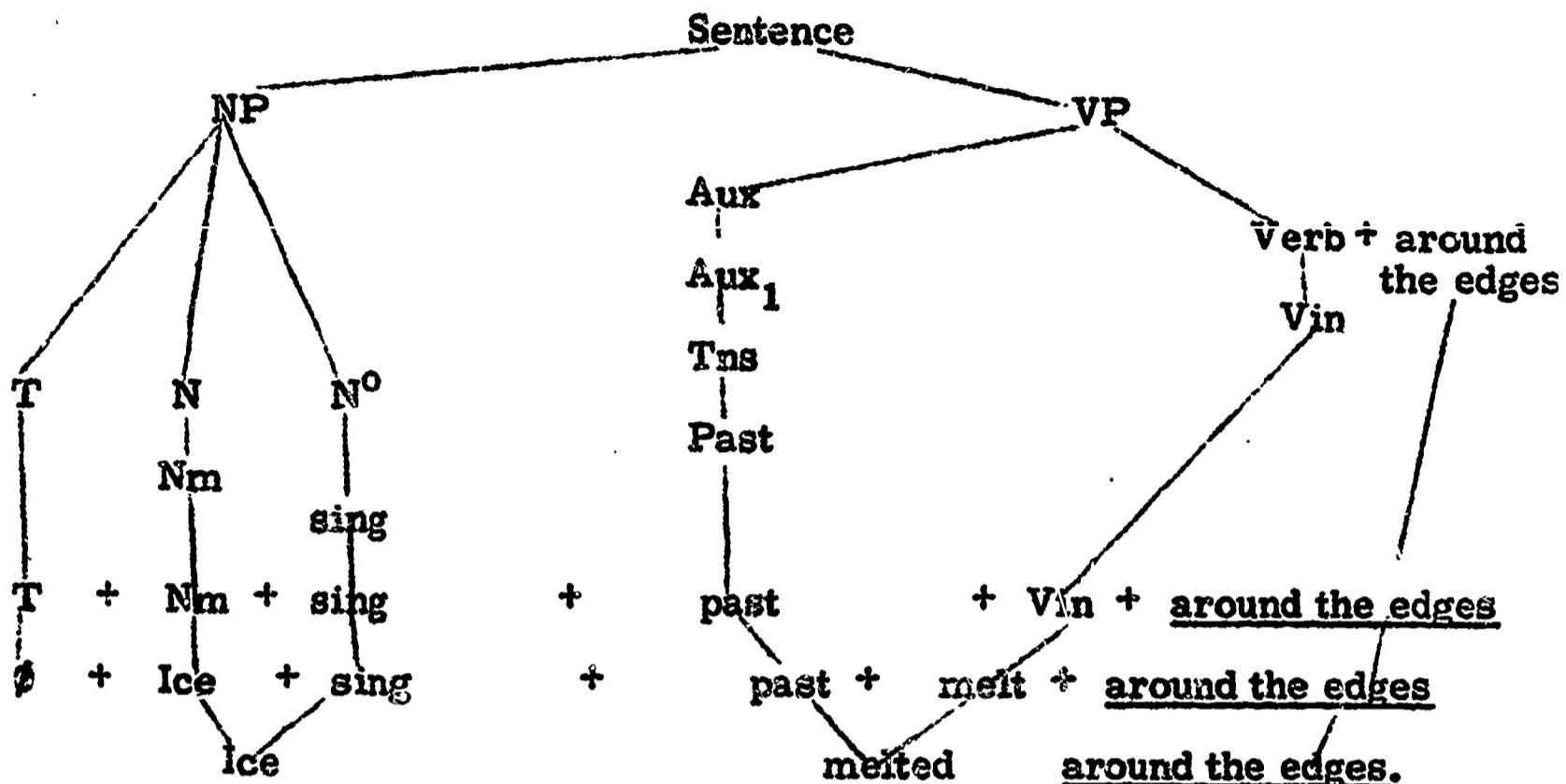
Exercise 2: Page 2

You will notice the telescoping and the omission of rule numbers in the following diagrams. However, any student who seems confused should be encouraged to include each step of a complete diagram with close attention to an orderly application of each rule.

1. The design was ornate.

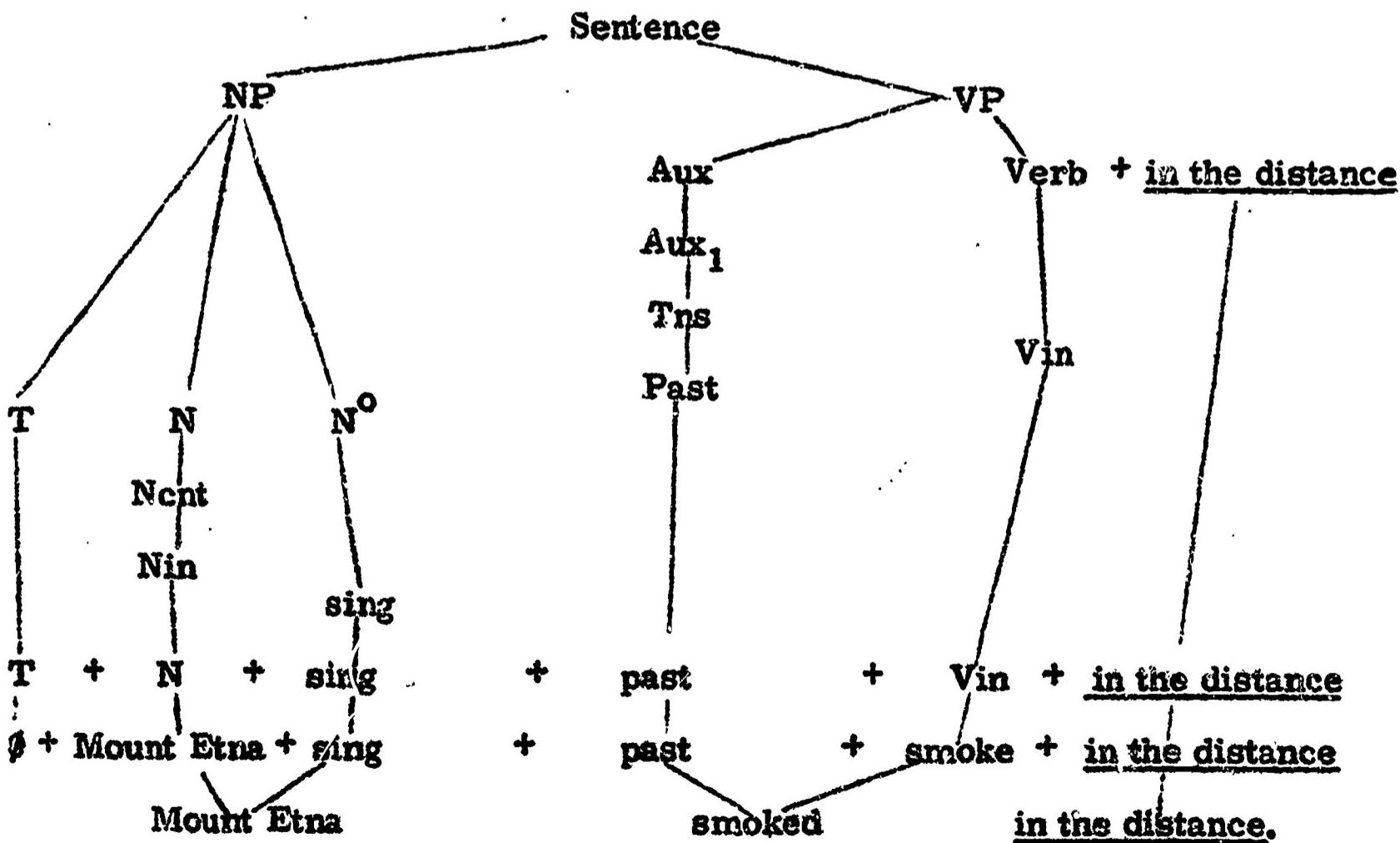


#2. Ice melted around the edges.

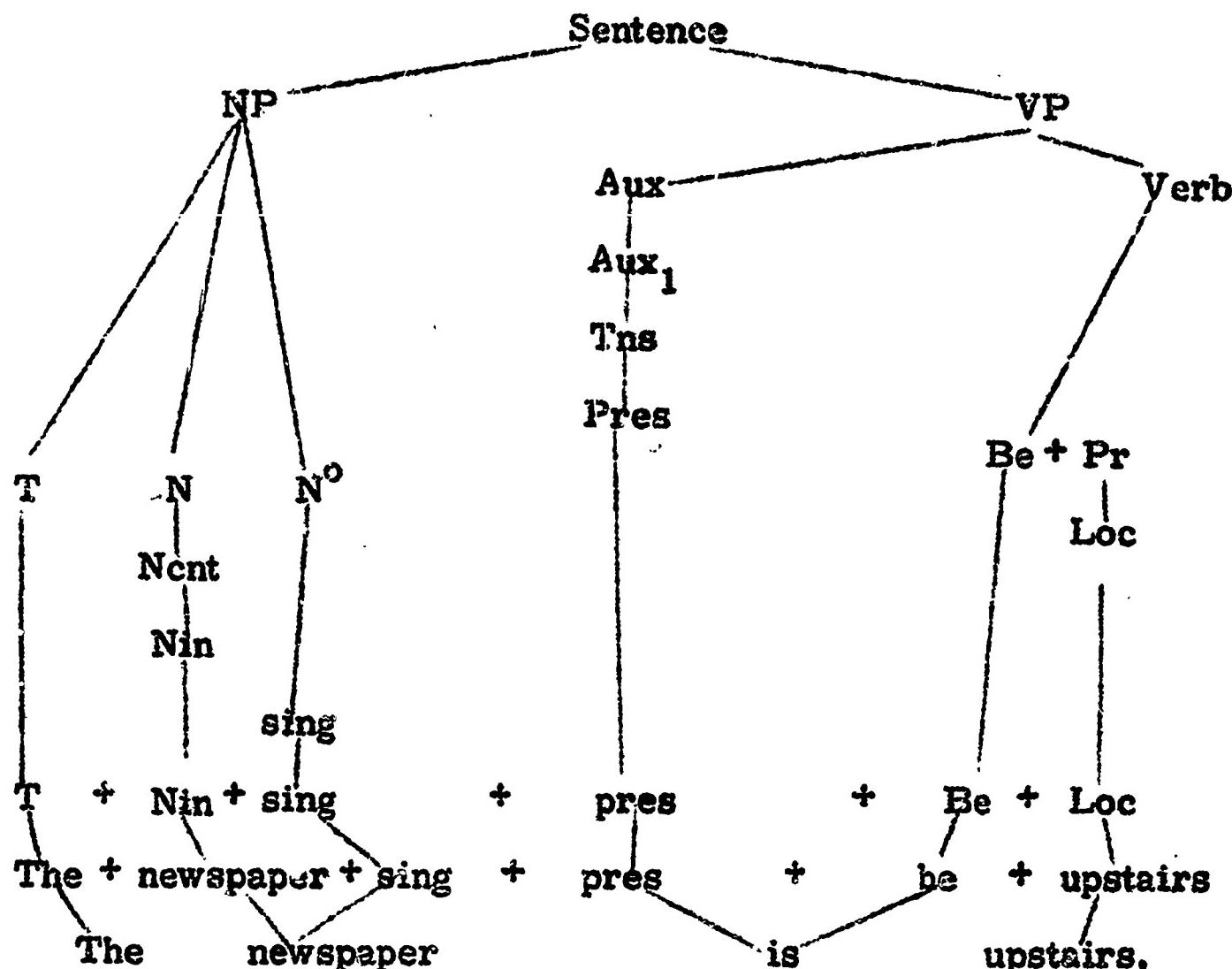


(Around the edges is a Loc, not yet accounted for by our original Phrase Structure Rules. Sentences 3, 6, and 8 contain similar elements.)

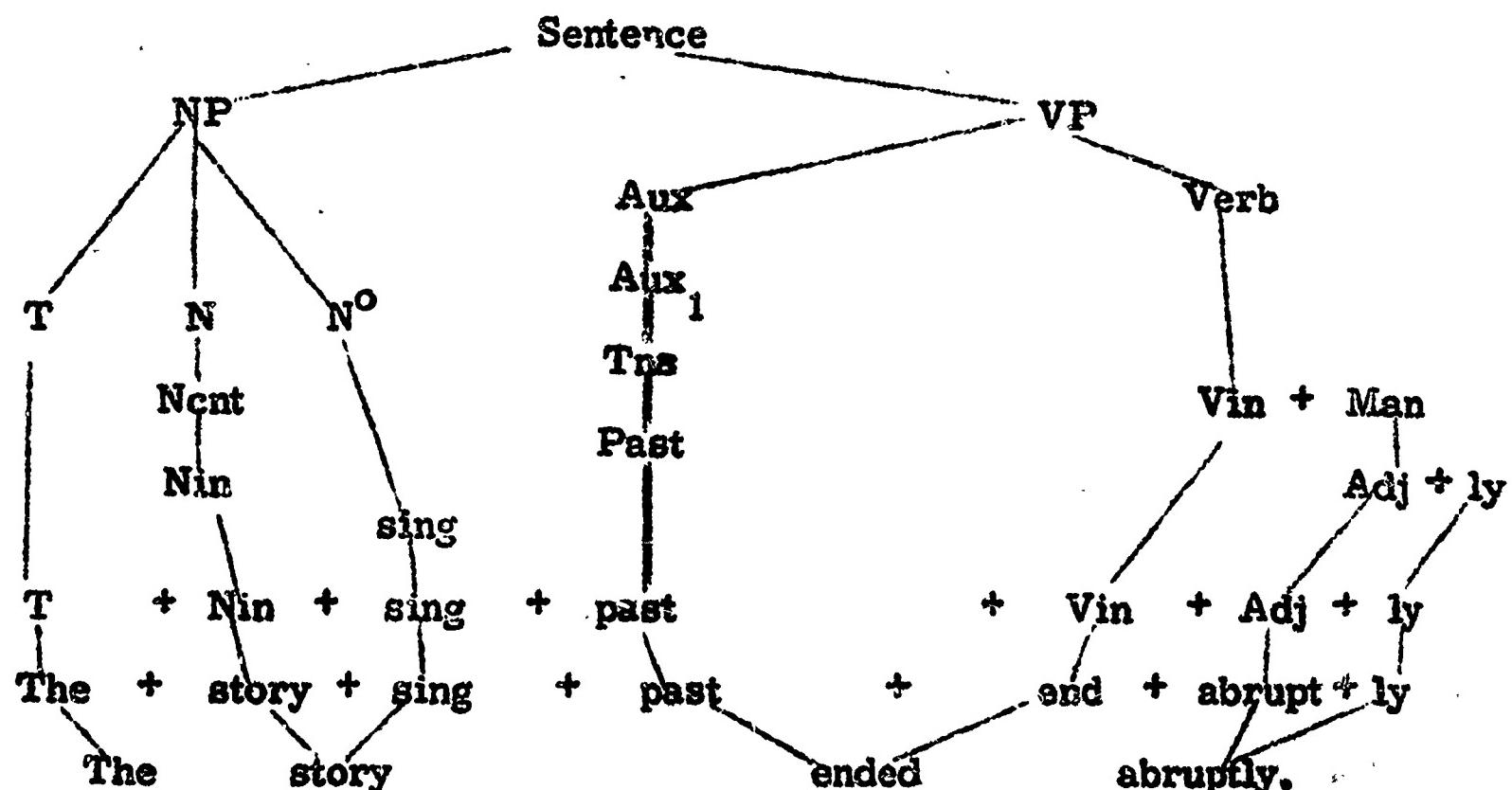
3. Mount Etna smoked in the distance.



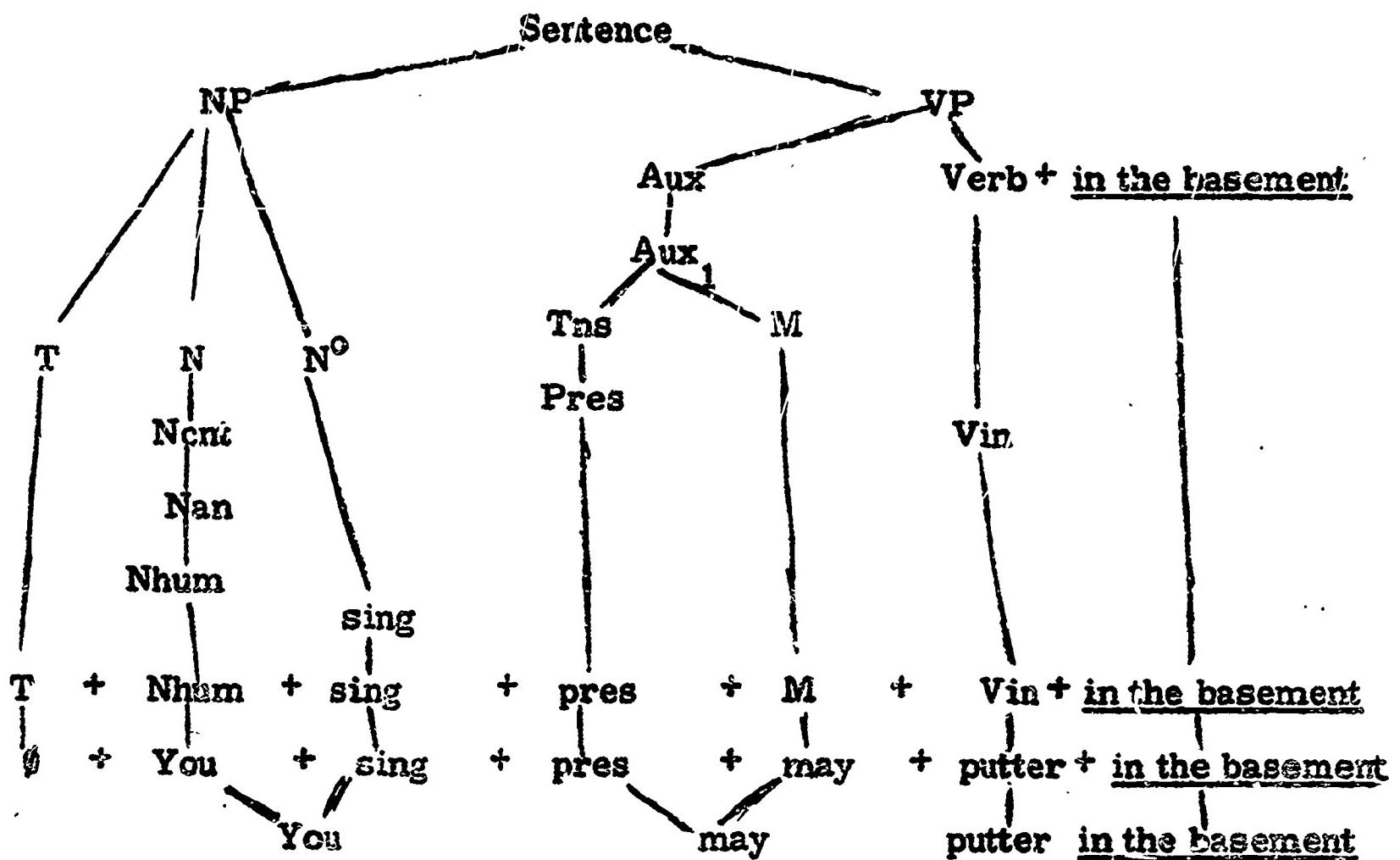
4. The newspaper is upstairs.



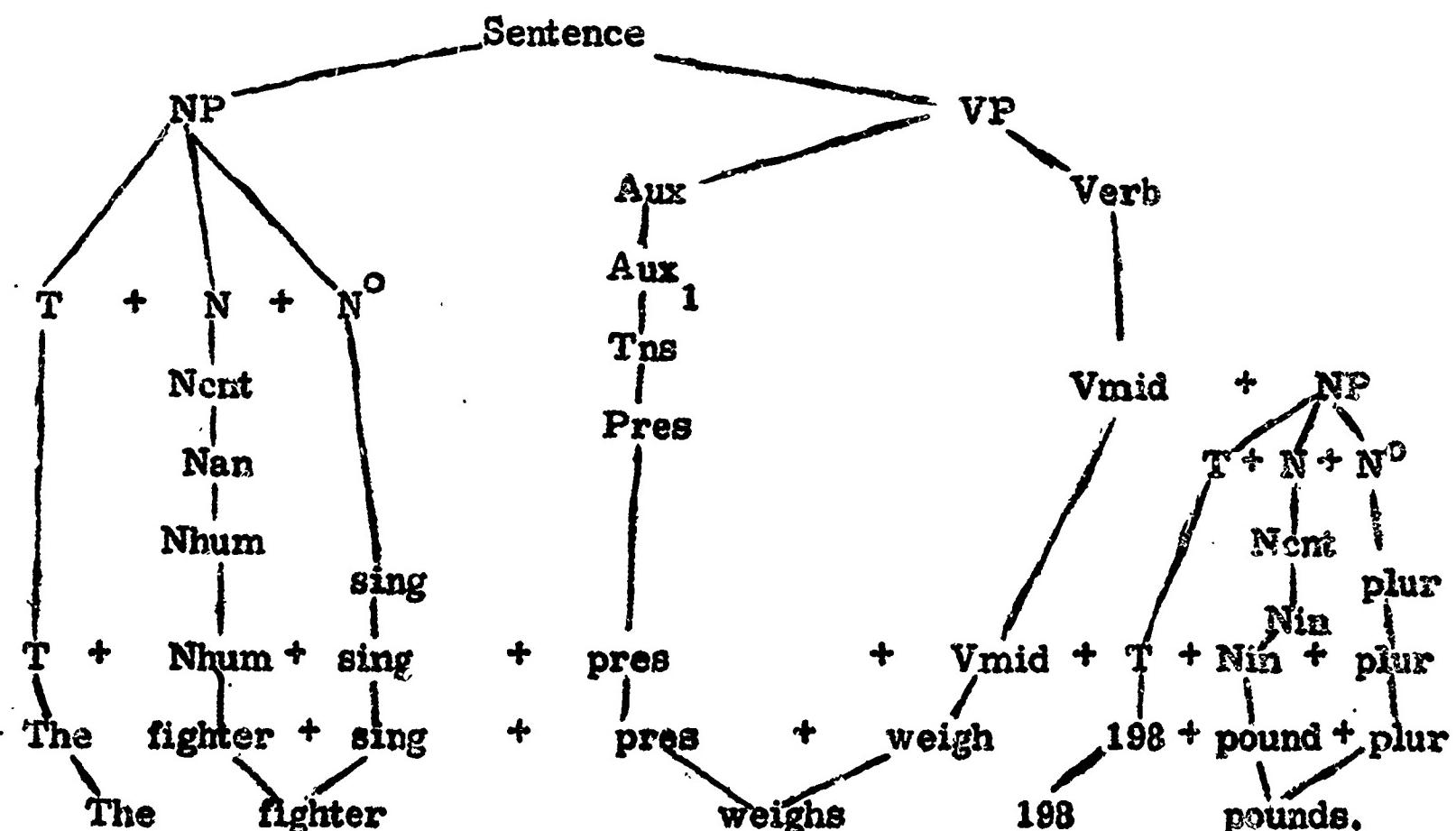
5. The story ended abruptly.



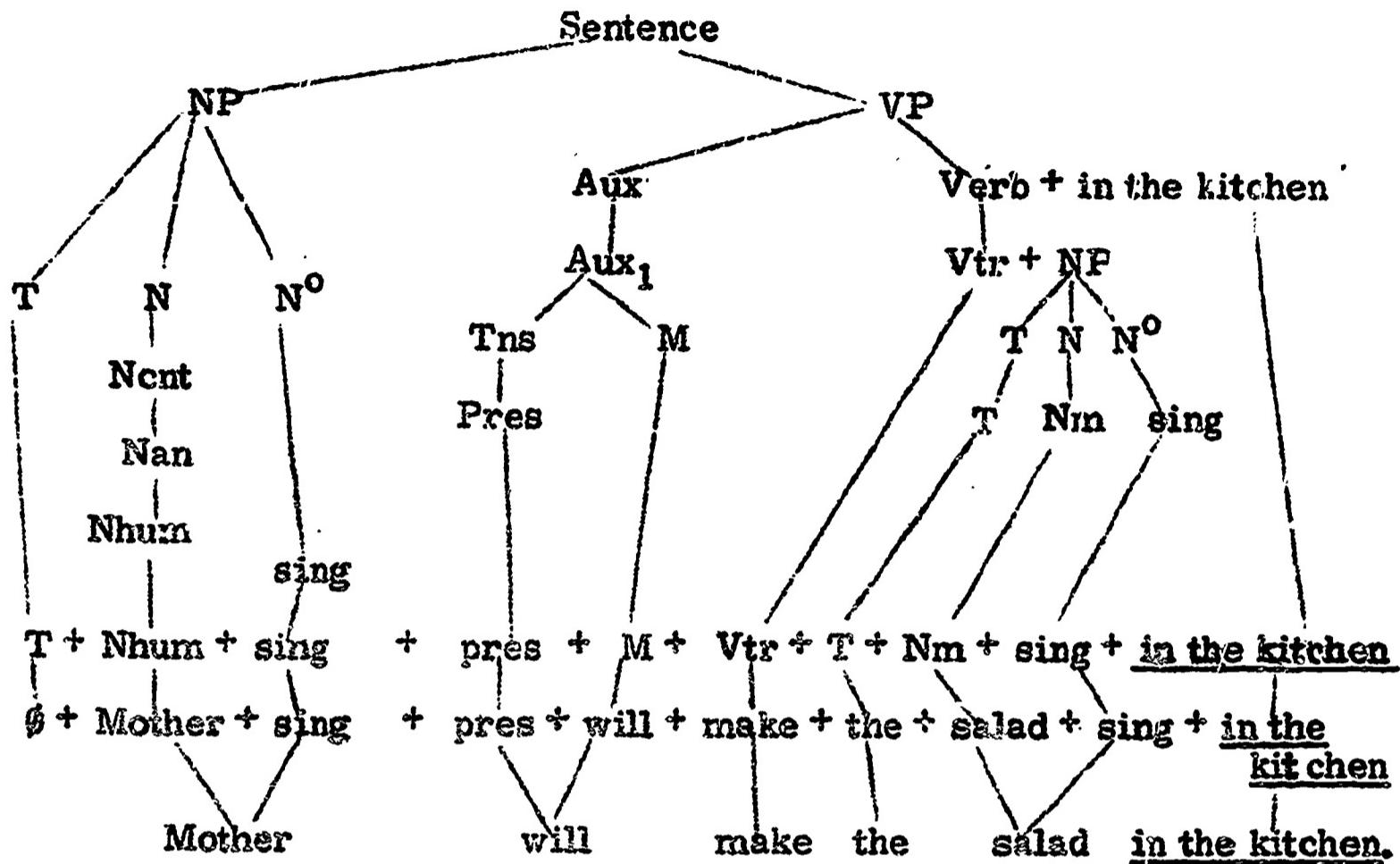
#6. You may putter in the basement. (You may be sing or plur.)



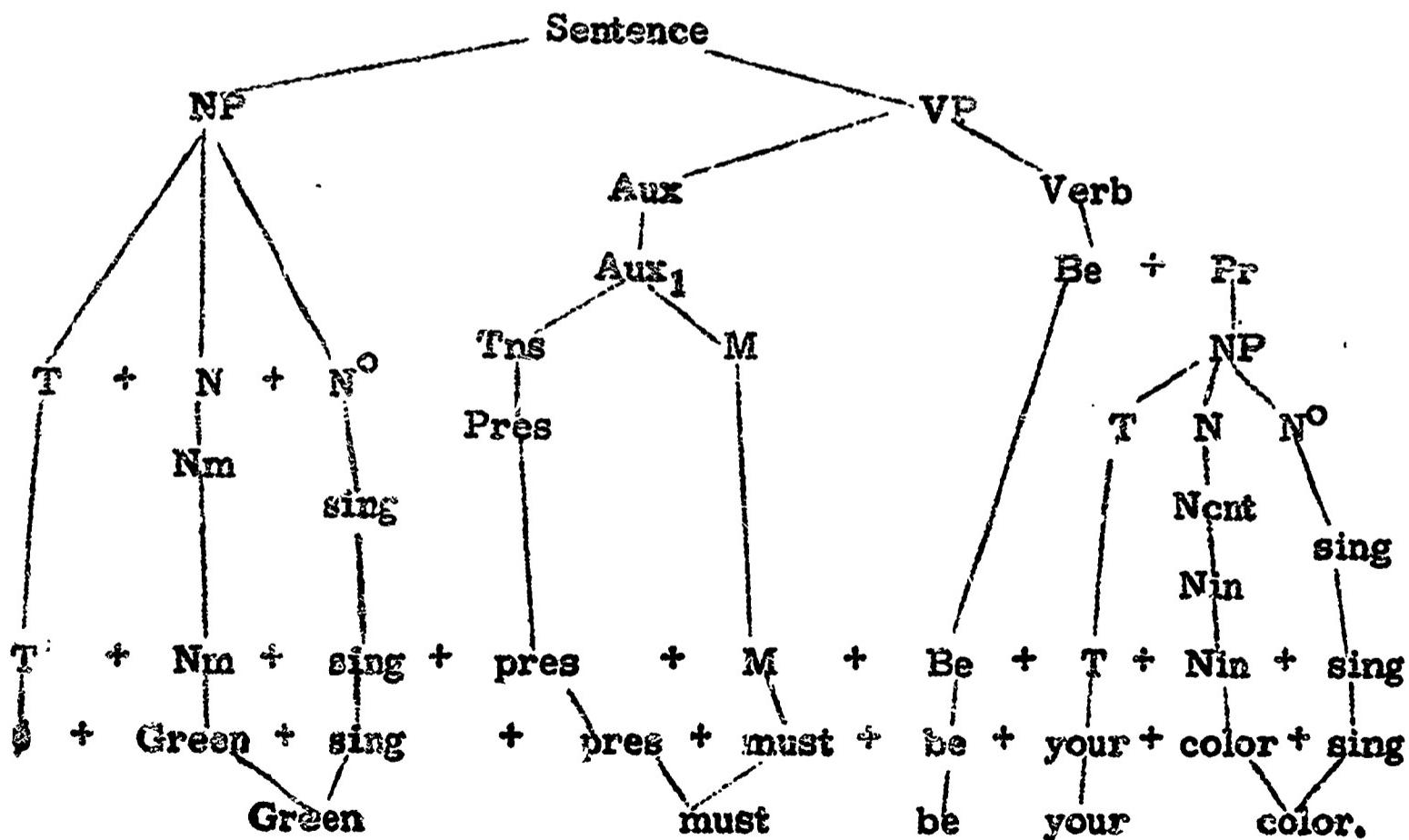
7. The fighter weighs 196 pounds.



#8. Mother will make the salad in the kitchen.



#9. Green must be your color. (Your may be regarded as a determiner at this point.)



Exercise 2: Page 2

	<u>Verb</u>	<u>Kind</u>	<u>Loc</u>
1.	is	Be	at home
2.	sounds	Vlnk	here
3.	have	Vmid	in Kansas
4.	found	Vtr	at the pool
5.	exploded	Vin	in the closet
6.	was sleeping	Vin	on the floor
7.	gnawed	Vtr	outside
8.	costs	Vmid	at Sears
9.	seemed	Vlnk	at school
10.	is	Be	in his building

Exercise 3: Page 3

You will want to remind your students that besides Loc there are other kinds of adverbs.

- Man Loc
1. Joan played ball happily in the yard,
 Loc
 2. She will live in the apartment,
 Loc
 3. The moon is rising there,
 Loc
 4. The packages arrived here,
 Man Loc
 5. The poodle sat perkily outside.
 Man Loc
 6. The fog settled ominously in the harbor,
 Loc
 7. Harriet will shop downtown,
 Loc
 8. The salmon slithered upstream,
 Loc
 9. The children ran races in the meadow,
 Loc
 10. Roosevelt became ill in Florida.

Exercise 4: Page 4

Answers will vary. The following sentences are possible answers.
(You may wish to have your students check their sentences by writing the symbol string above each sentence.)

1. I had hit him softly.
2. The ice appeared dangerous in the middle.
3. She had been asleep in class.
4. The faucet is dripping in the bathtub.
5. You had a cold in Chicago.
6. The boys had been playing hard in the gym.
7. A policeman stopped him on the corner.

- #8. He was at the movie.
9. It grew dark in the study.
10. He had stopped the travelers quickly on the road,

ADVERB OF TIME

Page 5

By answering the questions here and doing Exercise 2, students should see that because the time adverbial may be an optional element in any kernel sentence we need to rewrite our rules to allow for this. We add Tm to Rule 2 because Verb includes all verbs, thus eliminating the necessity of placing Tm in any subsequent rules.

Exercise 2: Page 5

- Vin Tm
1. The fish were biting yesterday.
- Be Tm
2. Fred has been grumpy this morning.
- Vtr Tm
3. Montraorency must have skipped school last week.
- Vtr Tm
4. You should check the battery daily.
- Vin Tm
5. Mantle will be batting next.
- Vmid Tm
6. Miss Forbush has a headache tonight.
- Be Tm
7. The cornflakes have been soggy this winter.
- Vlnk Tm
8. The Pacific Ocean might have looked rough a week ago.
- Vtr Tm
9. Some girls are washing cars before breakfast.
- Vin Tm
10. The group will meet tomorrow.

#This is an example of Loc which is a Pr. It should provoke some discussion about the optional nature of most Adverbs of location, but the necessity of this one.

Exercise 3: Page 6

- A. 1. $\emptyset + N_{hum} + sing + past + Vtr + T + N_{in} + sing + Man + Tm$
 He passed the course easily last year.
2. $\emptyset + N_{hum} + sing + past + V_{tr} + T + N_{in} + sing + Man + Tm$
 Joseph did his work carefully last year.
3. $\emptyset + N_{hum} + sing + past + M + have + en + V_{in} + Man + Tm$
 Mother would have called frantically by then.
4. $\emptyset + N_{hum} + sing + past + V_{in} + Man + Loc$
 Huck floated cheerfully down the river.
5. $T + N_{in} + plur + pres + be + ing + V_{in} + Man + Tm$
 The flowers are growing rapidly this spring.
6. $T + N_{in} + sing + past + V_{in} + Loc + Tm$
 The boat floated down the river last night.
7. $\emptyset + N_{hum} + sing + past + Vtr + T + N_{in} + sing + Loc + Tm$
 Ann found the ring in the drain this morning.
8. $\emptyset + N_{non} + plur + pres + V_{in} + Loc + Tm$
 Bears sleep in caves in the winter.

- B. 1. $T + N_{hum} + sing + pres + will + go + Loc$
 The astronaut will go to the moon.
2. $\emptyset + N_{hum} + sing + past + find + T + N_{in} + sing + Loc$
 He found the ball under the fence.
3. $T + N_{hum} + plur + pres + have + en + be + ing + work + man + Loc$
 The men have been working industriously in the field.
4. $\emptyset + N_{hum} + sing + pres + have + en + be + ing + sit + Loc + Tm$
 Ned has been sitting at the typewriter all night.
5. $T + N_{hum} + sing + pres + will + be + ing + speak + Loc + Tm$
 The superintendent will be speaking at our school soon.

6. T + Nnon + sing + past + thrash + T + Nm + stug + Man + Loc
 An alligator thrashed the water noisily in the bathtub.
7. T + Nin + sing + past + float + Loc
 The surfboard floated in the trough.
8. T + Nin + sing + past + rage + Loc + Tm
 The battle raged on the hill all day.

With Rule 2 now recast as VP → Aux + Verb (Loc) (Tm) students should understand why they are permitted to include the optional elements of Loc and Tm in kernel sentences. The new Rule (2) allows either Loc or Tm, but asserts that when both Tm and Loc adverbials are present Tm usually comes last.

ACTIVE AND STATIC LINKING VERBS

(8.3) Vlink → {Vlac (Man)
Vlst}

This is an optional unit. You should decide whether to use it or not on the bases of your class and its innate interest in and ability to cope with very fine distinctions. For a class of very bright students it offers many opportunities to discuss the complexities of our language.)

Exercise 1: Page 7

A.	Vlink	Pr	Kind of Pr
1.	seems	happy	adj
2.	smell	good	adj
3.	appeared	unconcerned	adj
4.	will remain	the secretary	NP
5.	must have gone	mad	adj
6.	looked	unclimbable	adj
7.	should remain	bashful	Loc
8.	have been getting	dry	adj
9.	tastes	flat	adj
10.	has become	his vocation	NP

Page 7

Vlink which will take the manner adverb are:

- #4. remain (Most people would accept manner adverbs in this sentence --for example, "Miss Fitts remained secretary cheerfully." -- but not in sentence 7. This should produce some interesting discussion about other restrictions on the Manner adverb.)

#5. gone (While go is not usually Vlink, it qualifies in this sentence because it replaces a verb such as become.)

8. get

10. become

Vlink which do not take the manner adverb quickly are

- | | |
|-------------|-----------|
| 1. seems | 6. looked |
| 2. smell | 7. remain |
| 3. appeared | |

Be sure that your students do understand the difference between a rule like this (8. 1) and the ones that replaced Rule 2. Perhaps if you remind them that our original rules permitted Man only with transitive and intransitive verbs, they will see the necessity for this sub rule which accounts for the small group of linking verbs that do accept a manner adverb.

Exercise 2: Page 8

- A. 1. became - Vlac
2. remained - Vlst
3. taste - Vlst
4. get - Vlac
5. grows - Vlac
6. sounds - Vlst
7. has appeared - Vlst
8. felt - Vlst
9. seemed - Vlst
10. is going - Vlac

B. Because students will find Sentences 7 and 10 very difficult to do you will probably wish to omit them. Answers will vary, but the following are possible answers:

Vlac

1. Roger became happy.
Vlac
 2. These pancakes became good.
Vlac
 3. Horatio grew unconcerned.
Vlac
 4. Miss Fitts will become the secretary.
Vist
 5. The dog must have looked mad.
Vlac
 6. The slope grew unclimbable.

8. Vl.st
The forests have been looking dry.

9. VI ac
This cola becomes flat.

C. 1. VLac → {get, grow, turn, go, become, . . . }
2. Vl.st → {appear, look, seem, remain, stay, sound, taste, feel,
 {look, smell, . . . }}

THE ADVERB OF DIRECTION

$$(10.1) \quad V_{in} \rightarrow \left\{ \begin{array}{l} V_i \\ V_{id} \text{ (Dir)} \end{array} \right\}$$

Exercise 1: Page 9.

This is a simple review in identifying adverbs of location.

1. on the coast
 2. at home
 3. under the eaves
 4. in the pool
 5. in this cafeteria
 6. on the island
 7. there
 8. here
 9. in the plum tree
 10. in the broom closet

Exercise 1a: Page 9

- A.

 - 1. under the bed
 - 2. on the table
 - 3. around the flowers
 - 4. by
 - 5. in the yard
 - 6. in Rome
 - 7. on the freeway
 - 8. in the ballroom
 - 9. on the back porch
 - 10. in the tropics

B.

 - 1. to St. Ives
 - 2. to New York
 - 3. away
 - 4. to the goal post

5. to the next town
6. into bed
7. onto the floor
8. toward the depot
9. to the top
10. at the bear

The Loc elements in A answer "at what location;" those in B answer "to or toward what location."

Page 10

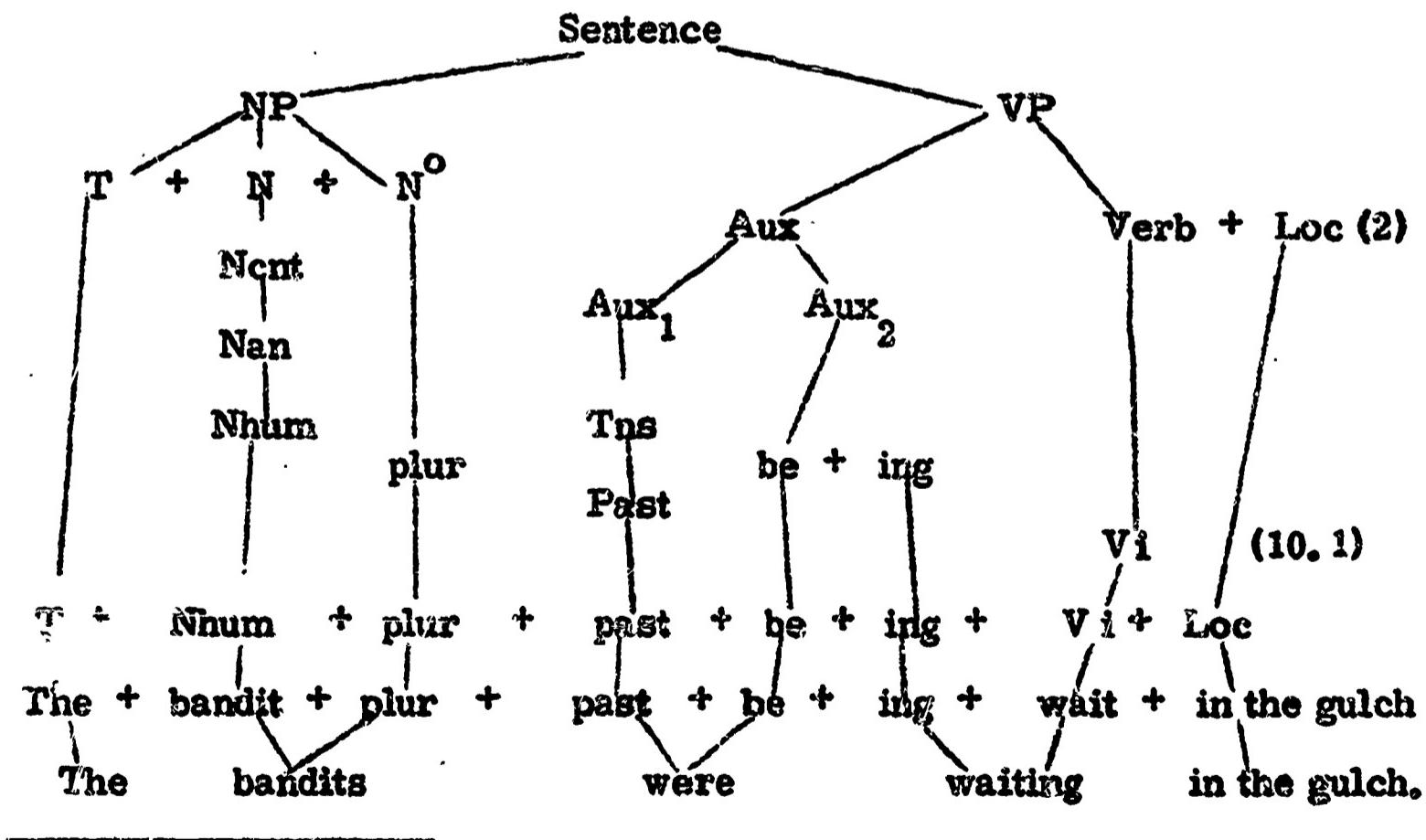
In helping students understand this distinction, you may need to emphasize that while all verbs may take a Loc adverbial only a special class of intransitive verbs takes the adverb of direction. (Dir). The adverb of direction indicates a change of direction or position and attaches to verbs of movement.

Exercise 2: Page 10

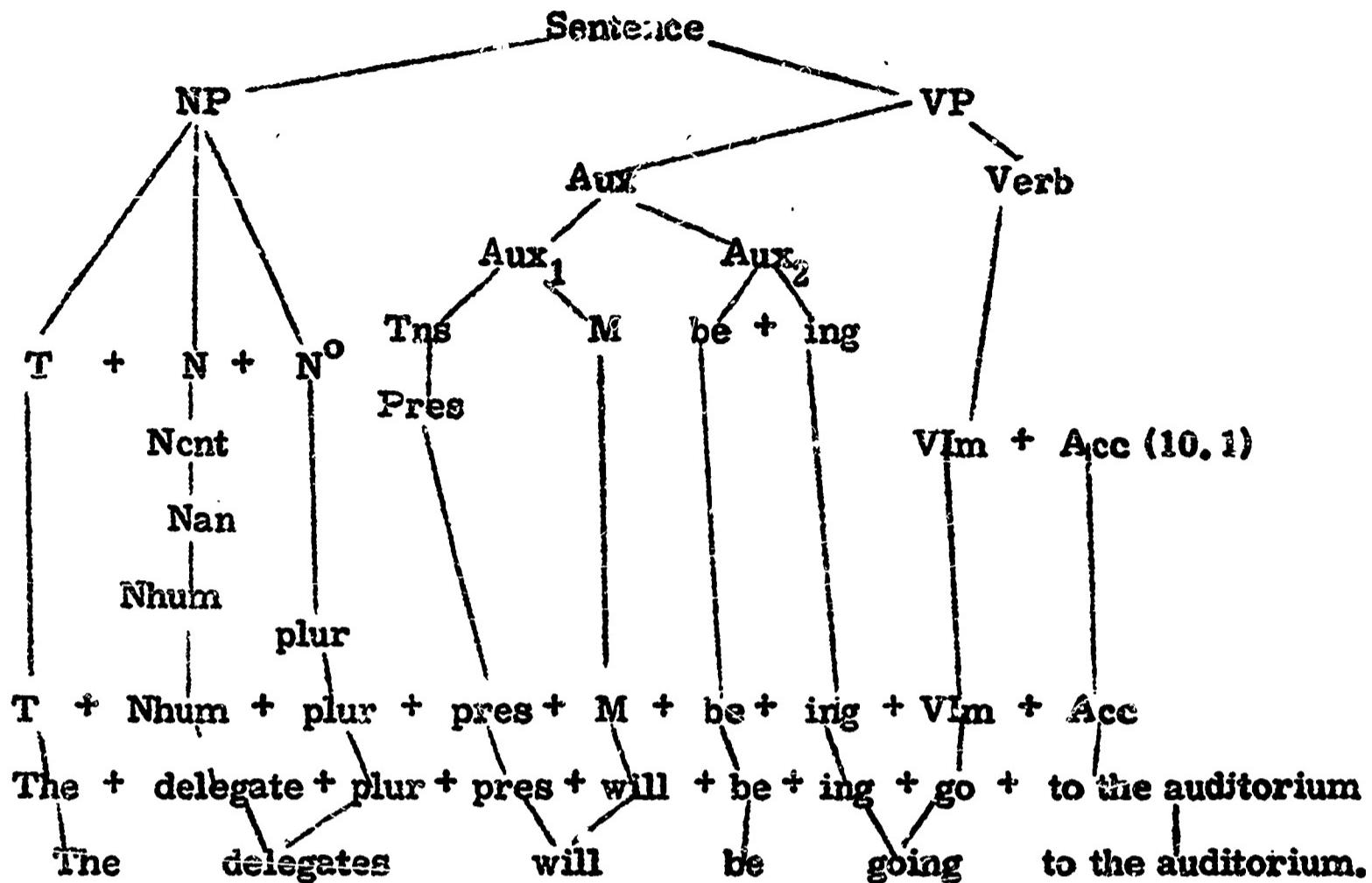
Because answers will vary, students would probably be interested in seeing sentences written by others in the class.

Review Exercise: Pages 10-11

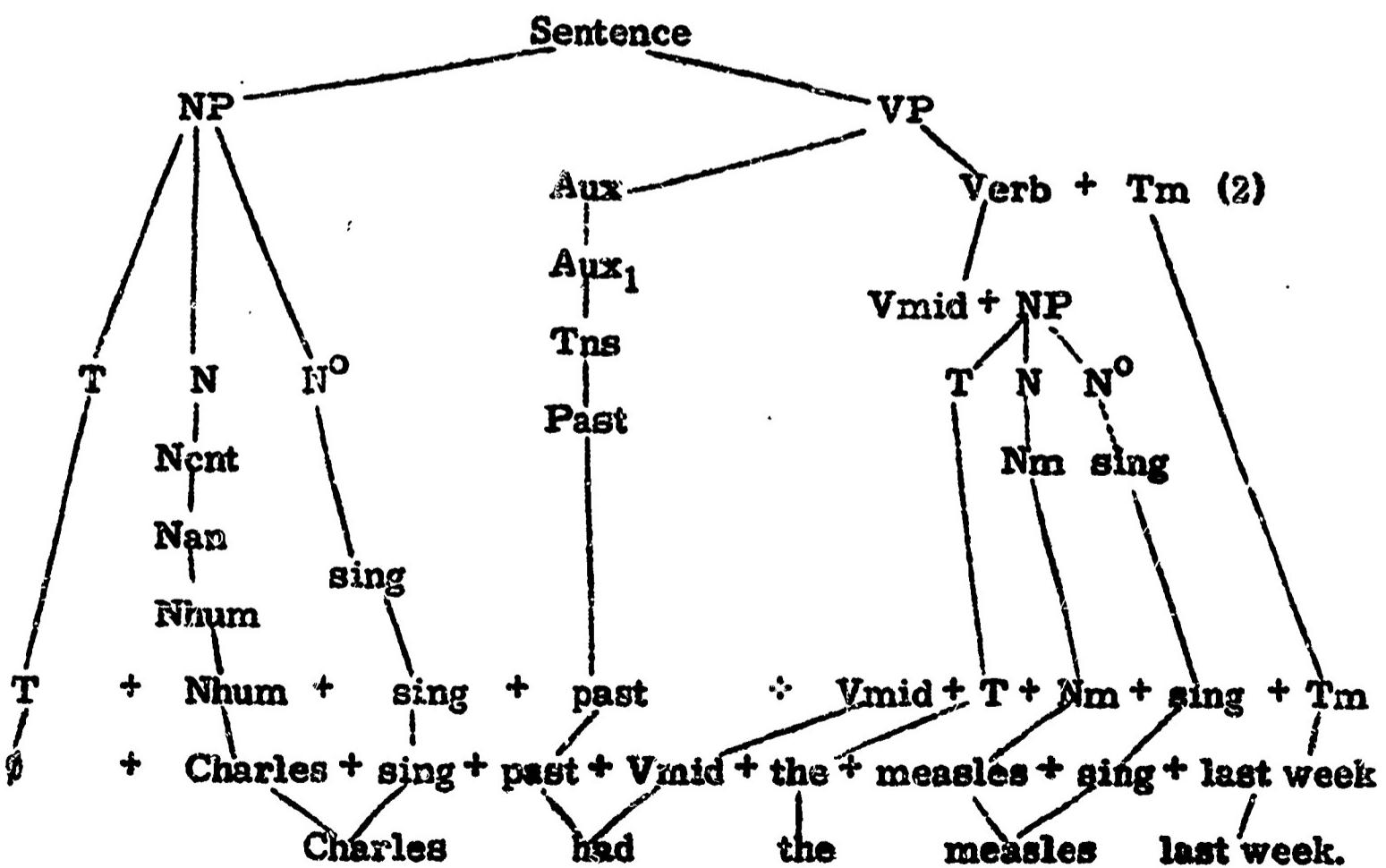
- A. 1. The bandits were waiting in the gulch.



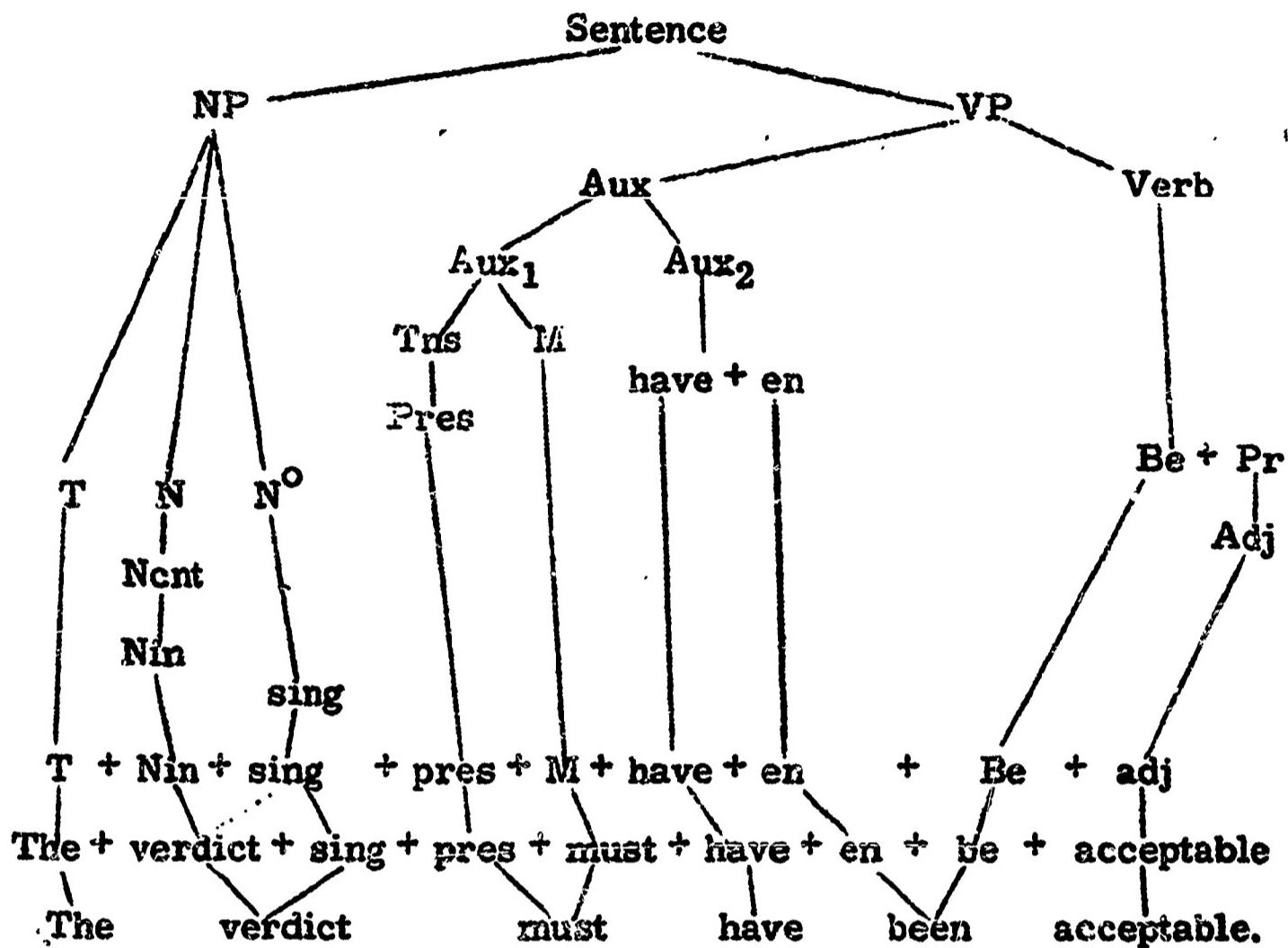
2. The delegates will be going to the auditorium.



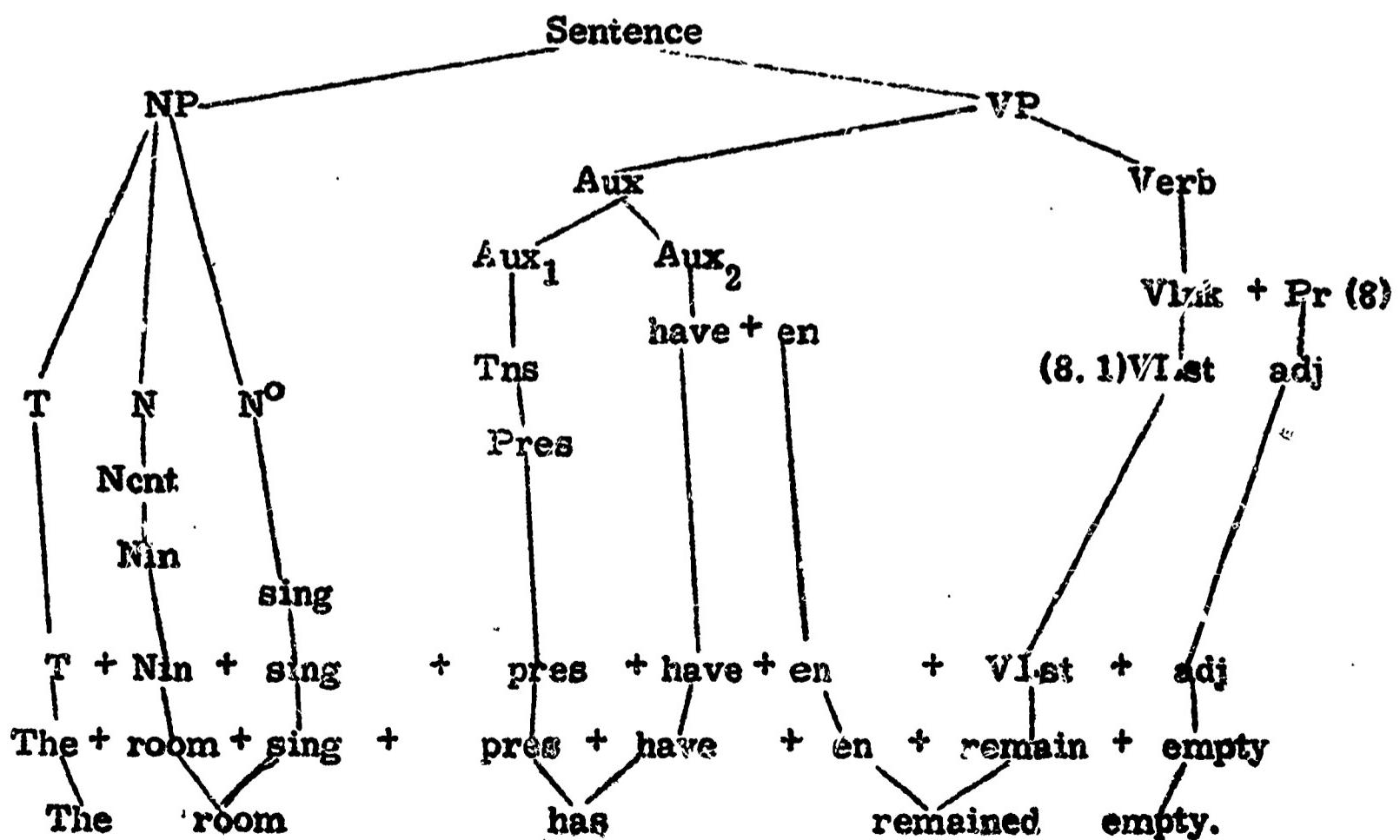
3. Charles had the measles last week.



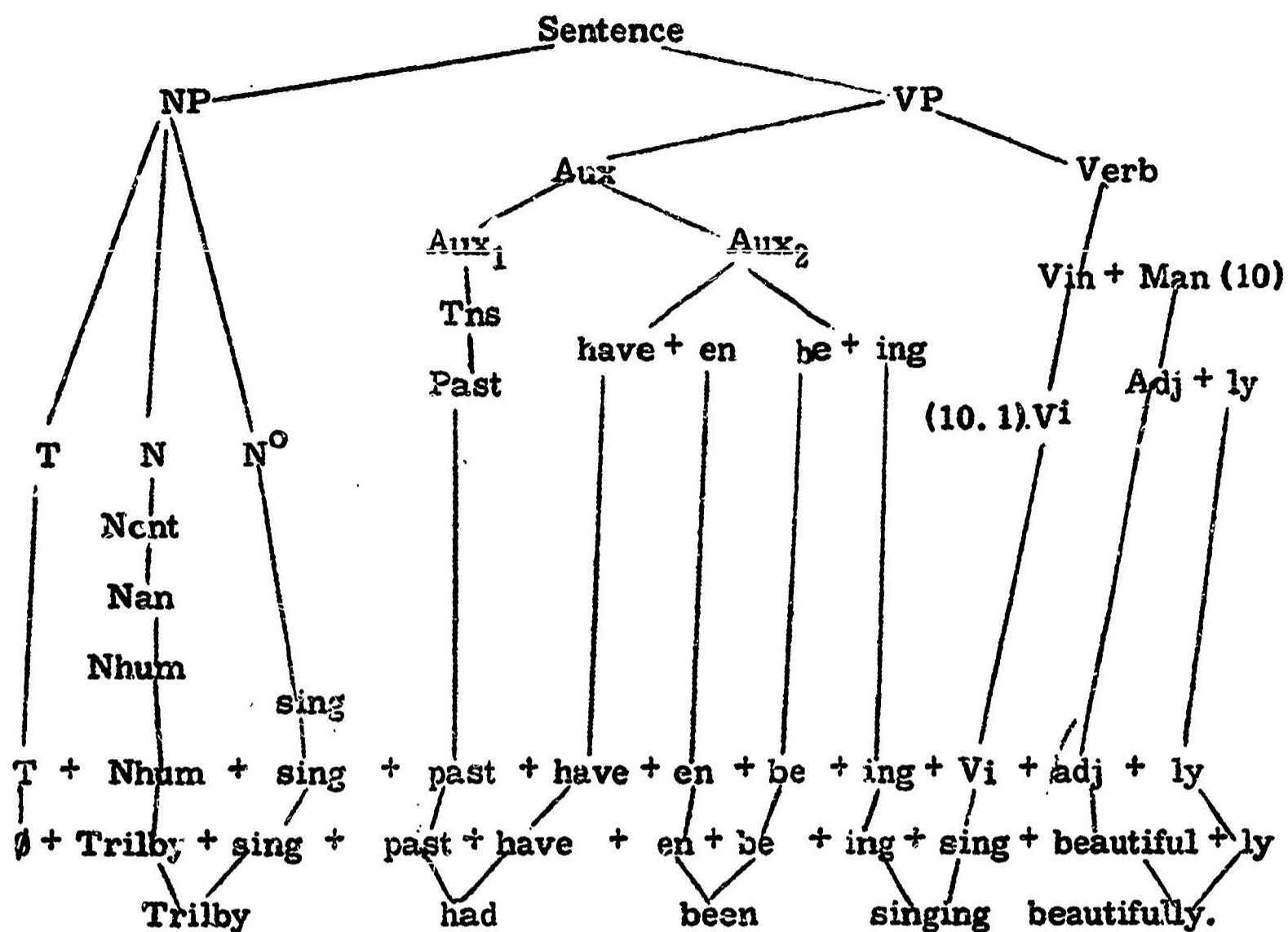
4. The verdict must have been acceptable.



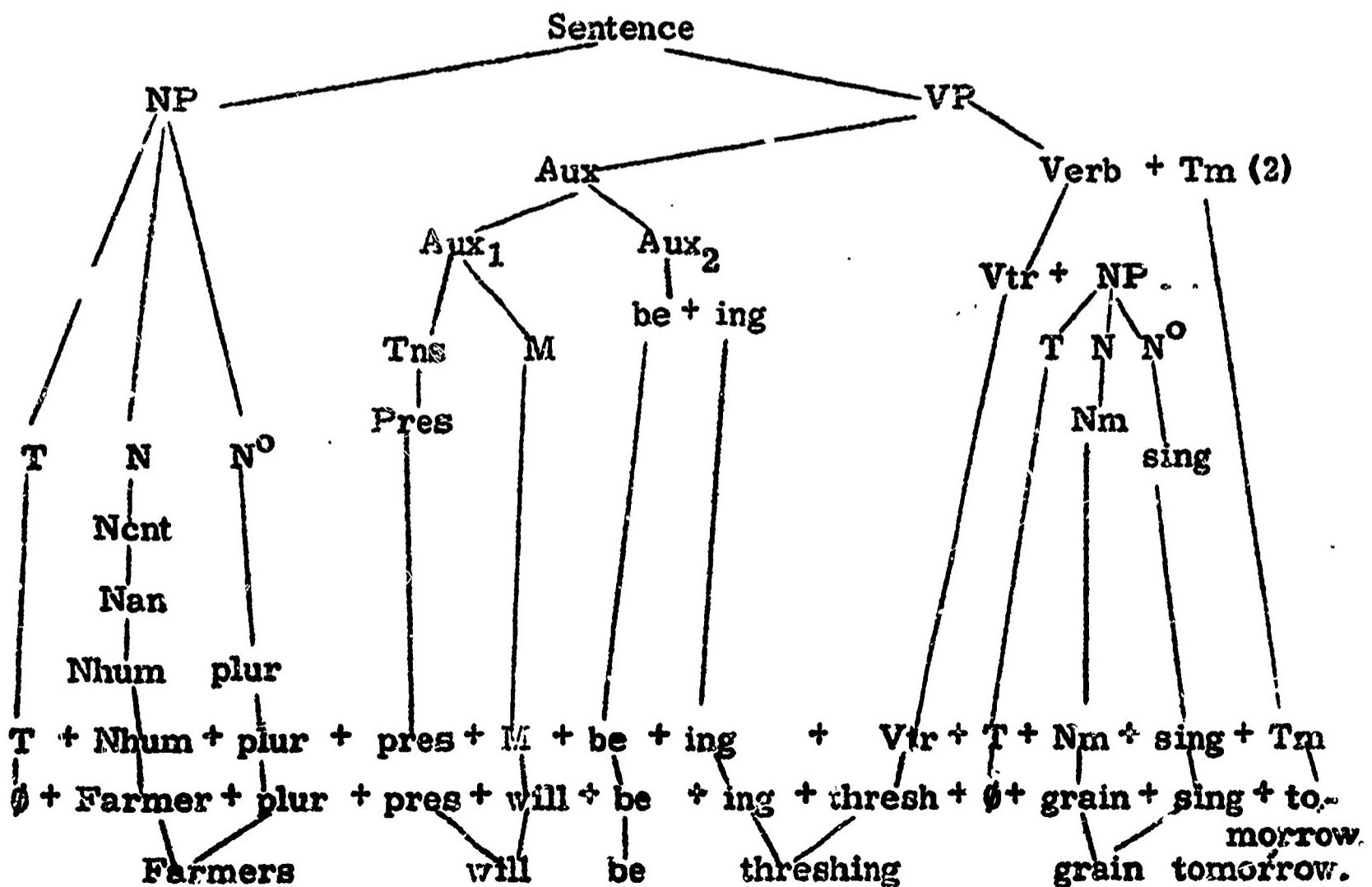
5. The room has remained empty.



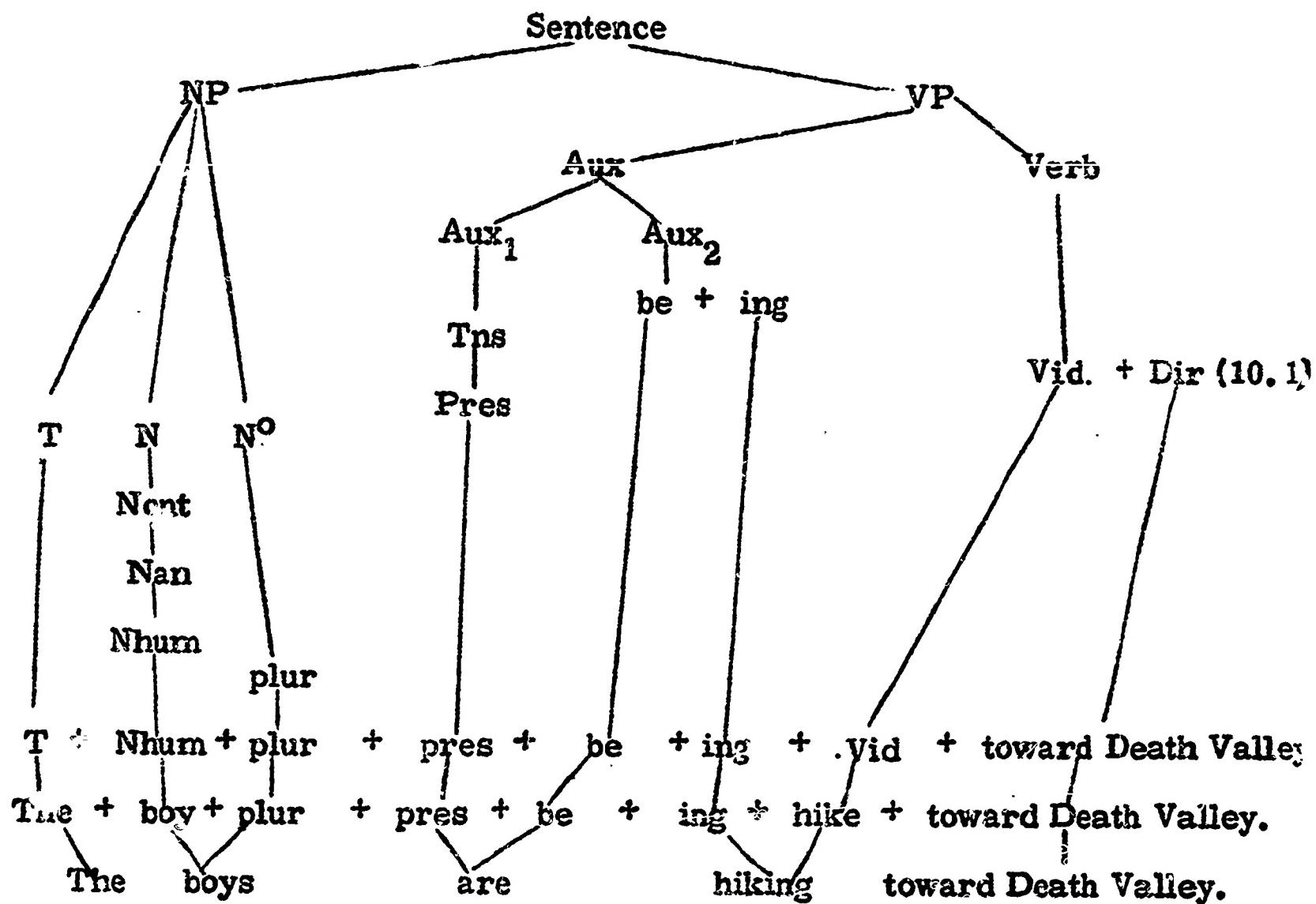
6. Trilby had been singing beautifully.



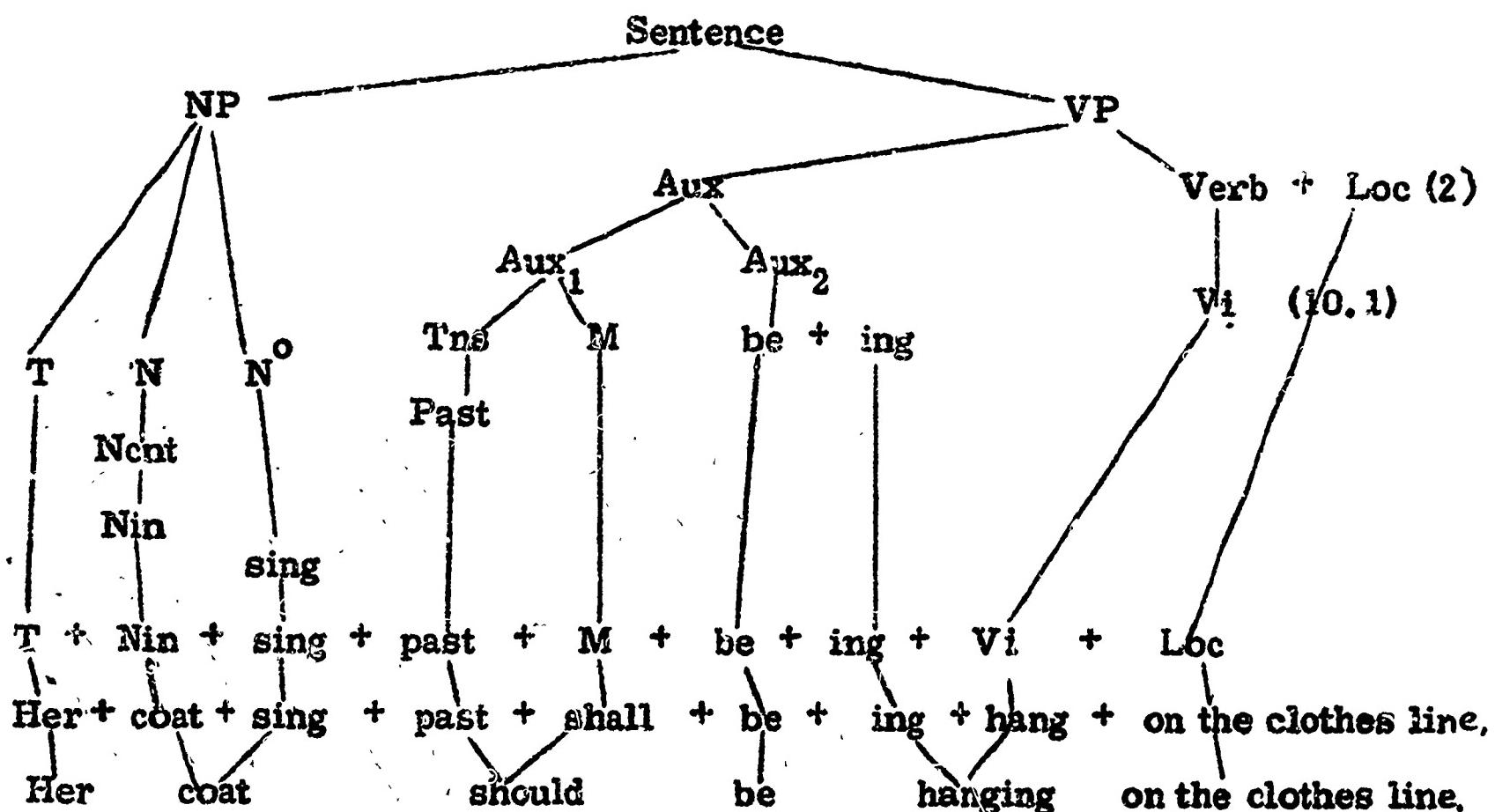
7. Farmers will be threshing grain tomorrow.



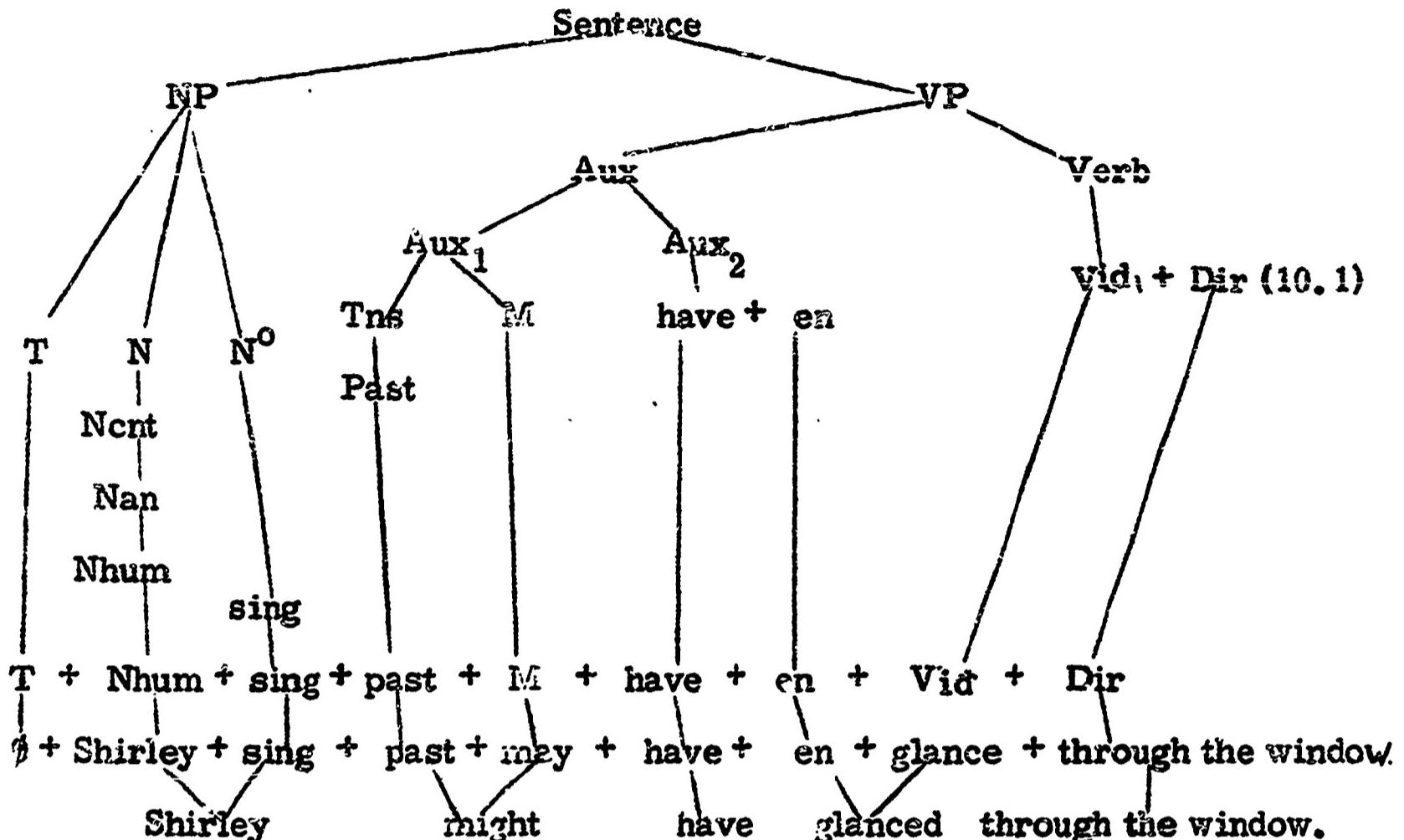
3. The boys are hiking toward Death Valley.



#9. Her coat should be hanging on the clothes line. #(Students may treat her as a determiner at this level.)



10. Shirley might have glanced through the window.

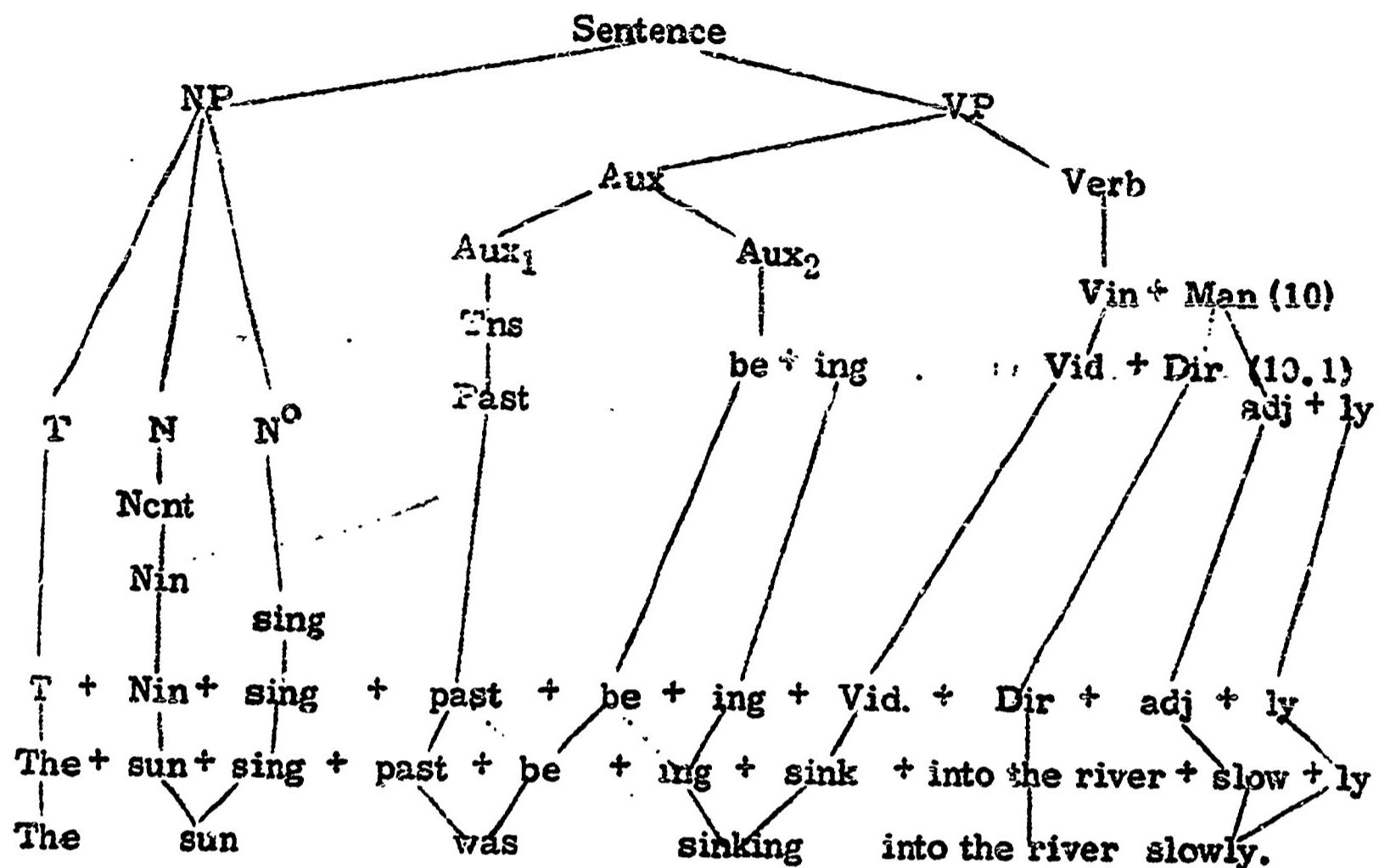


B. Students will find challenges in Sentences 1 and 3, which are actually transformations because elements are not in normal word order. You might ask your students to reorder the sentences, according to the normal order set forth in their rules, before diagramming them. Or you may prefer to give your class the reordered sentences if you include them in the assignment.

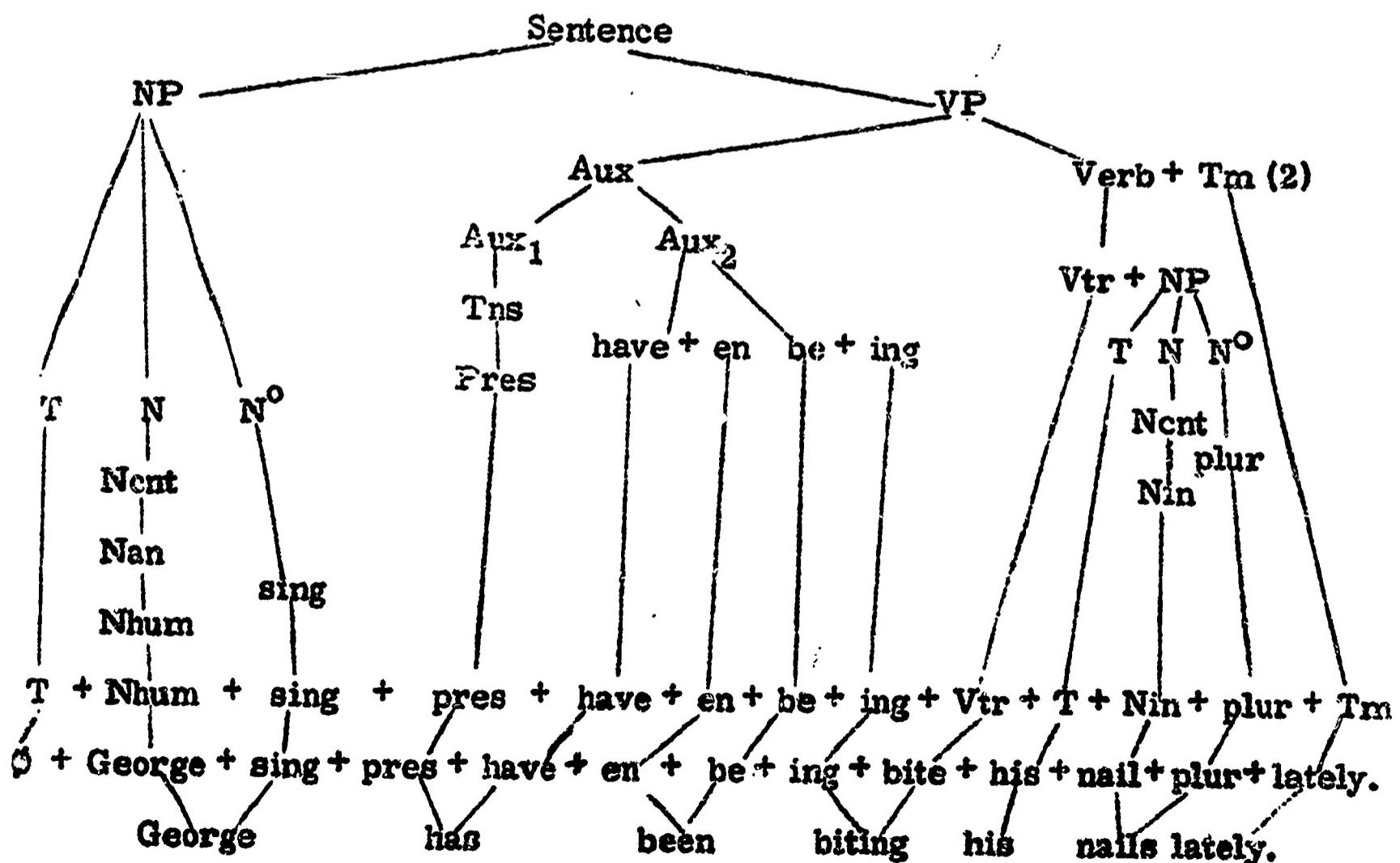
Because Dir is generated with the verb as part of the subclass of transitive verbs it appears in the kernel immediately following the verb. But normally we move it out beyond the manner adverb.

See following page.

- #1. The sun was sinking slowly into the river. (Transform)
 The sun was sinking into the river slowly. (Kernel)

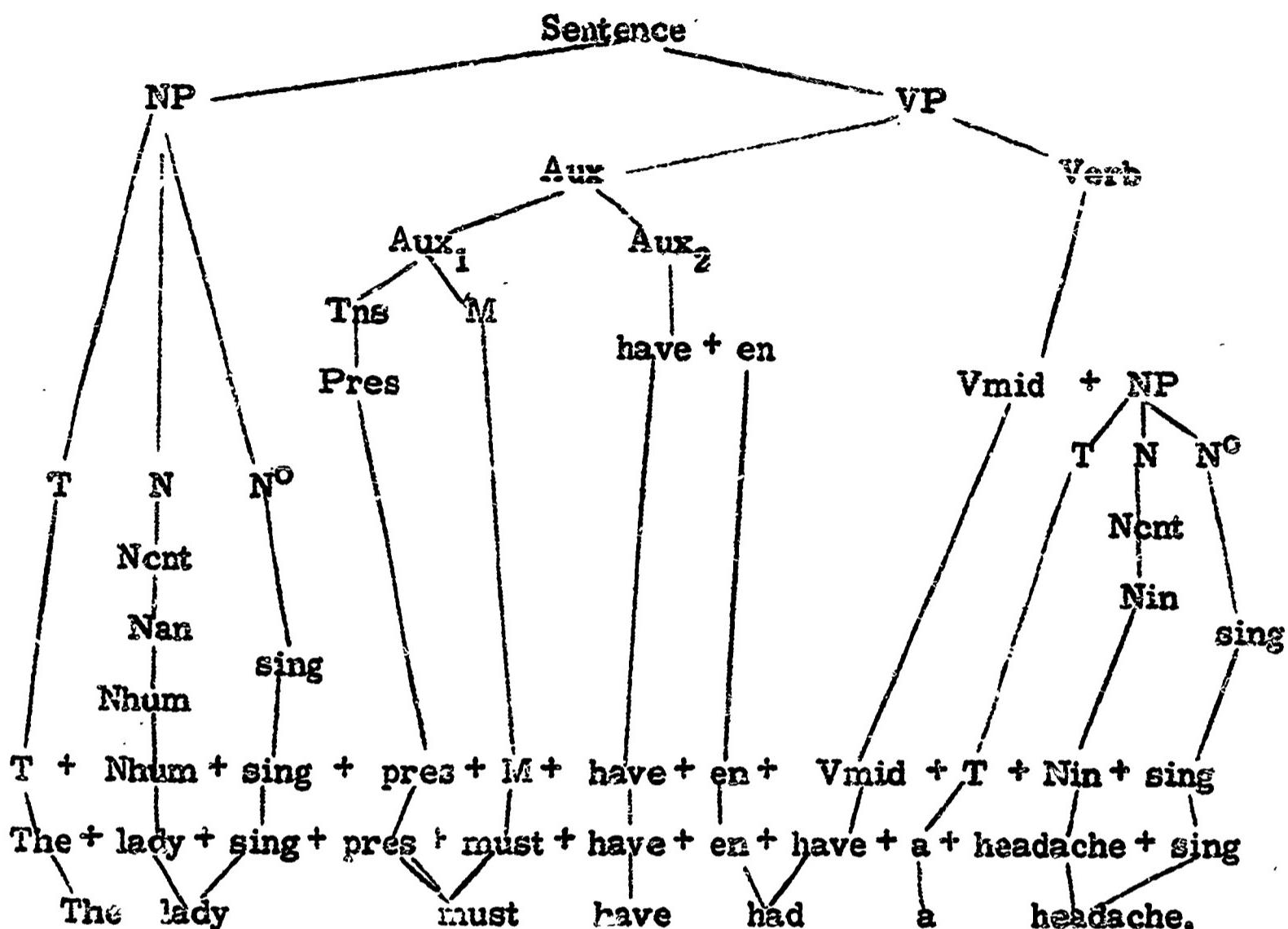


2. George has been biting his nails lately.

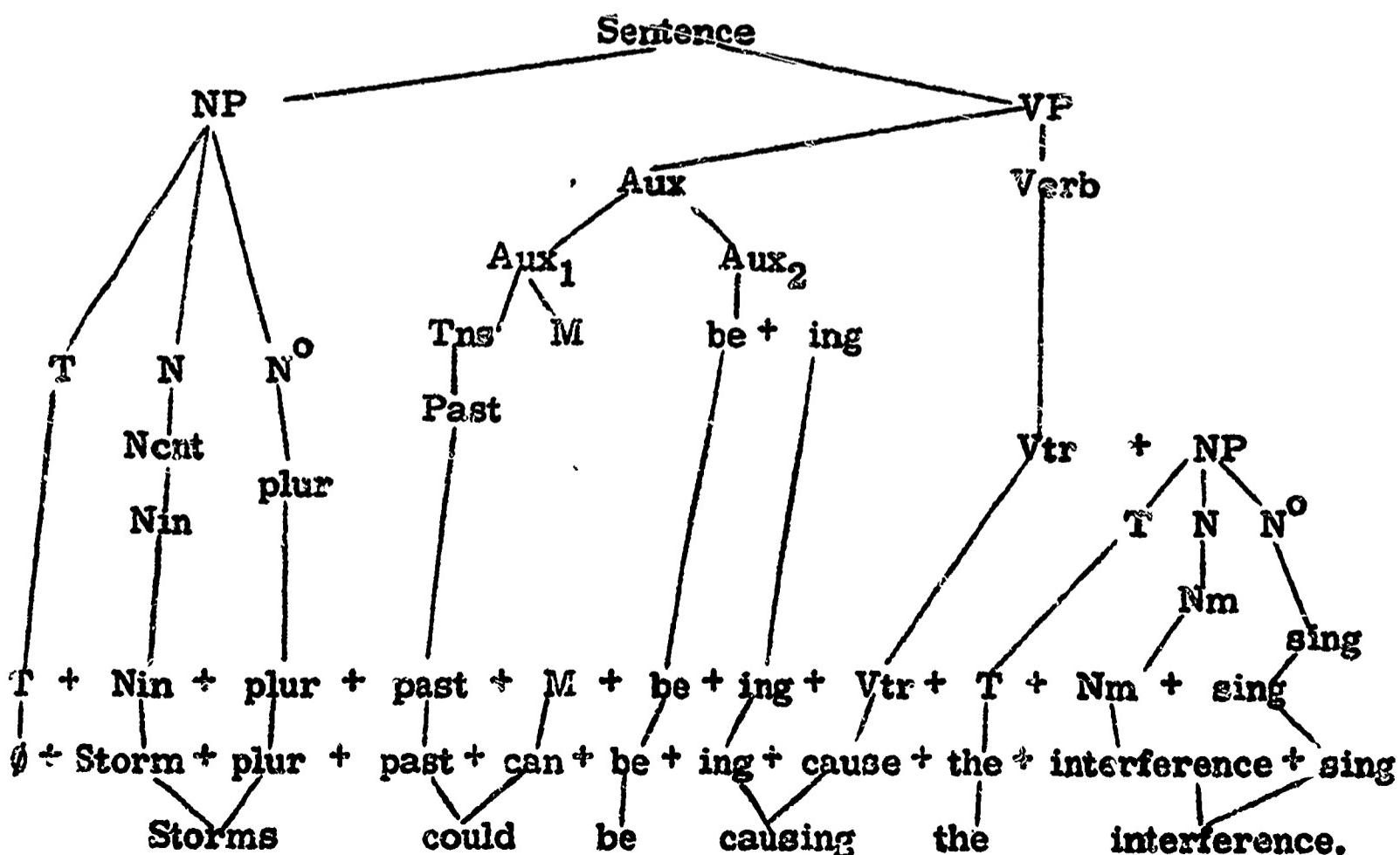


*(This is a transformed sentence since Man has to be moved inside Dir.
 The problem would be solved if "into the river" were a Loc.)

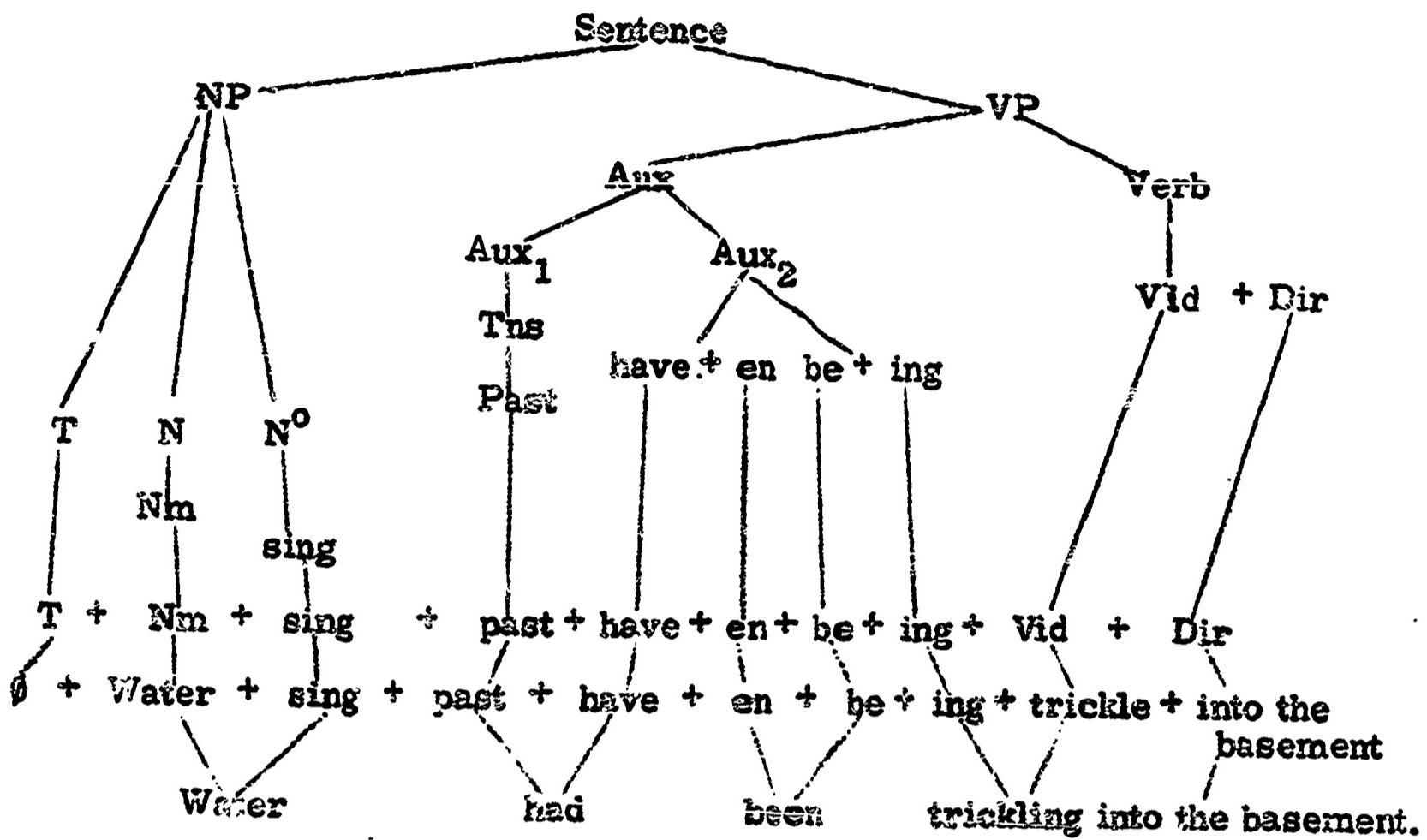
3. The lady must have had a headache.



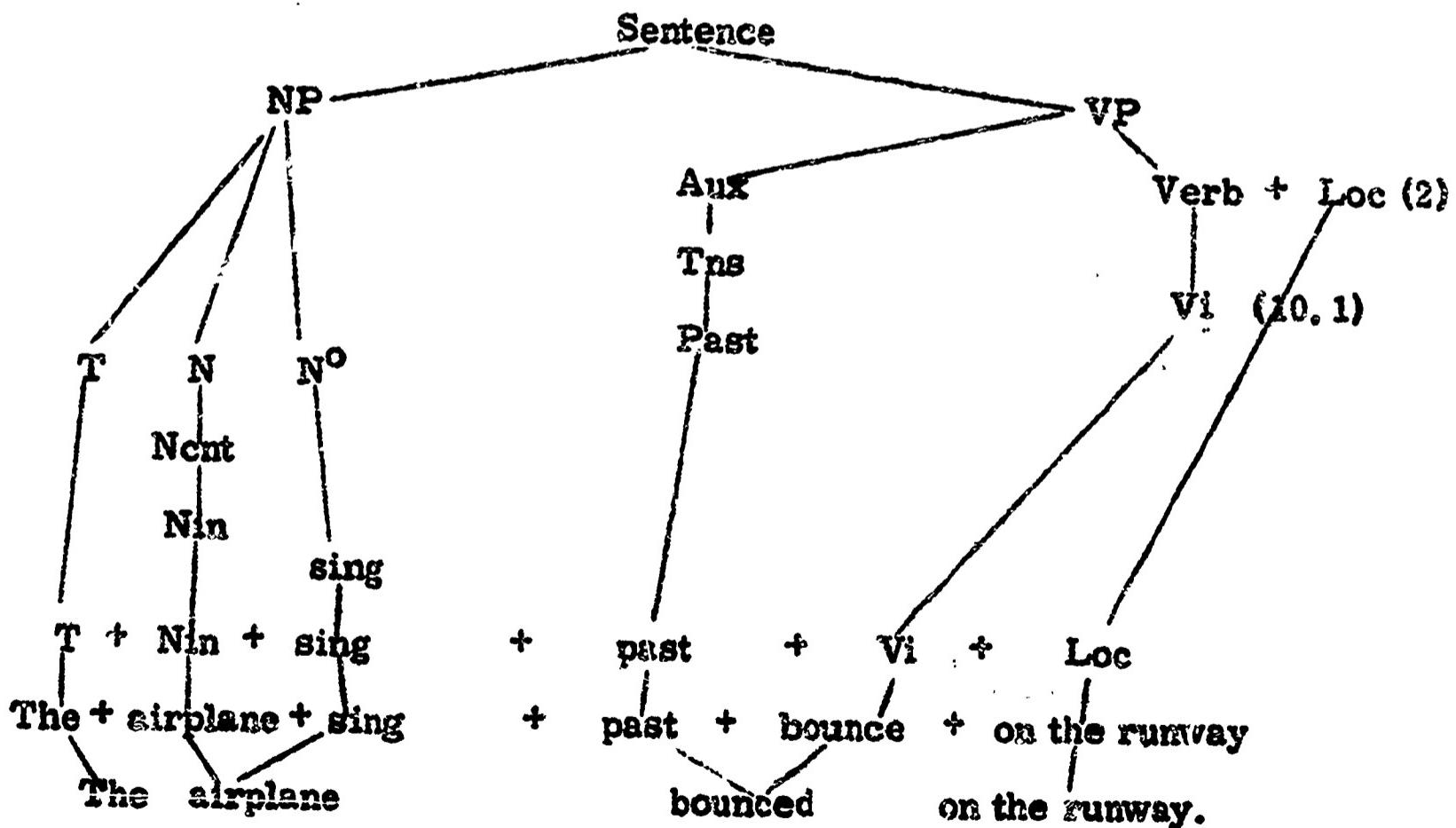
4. Storms could be causing the interference.



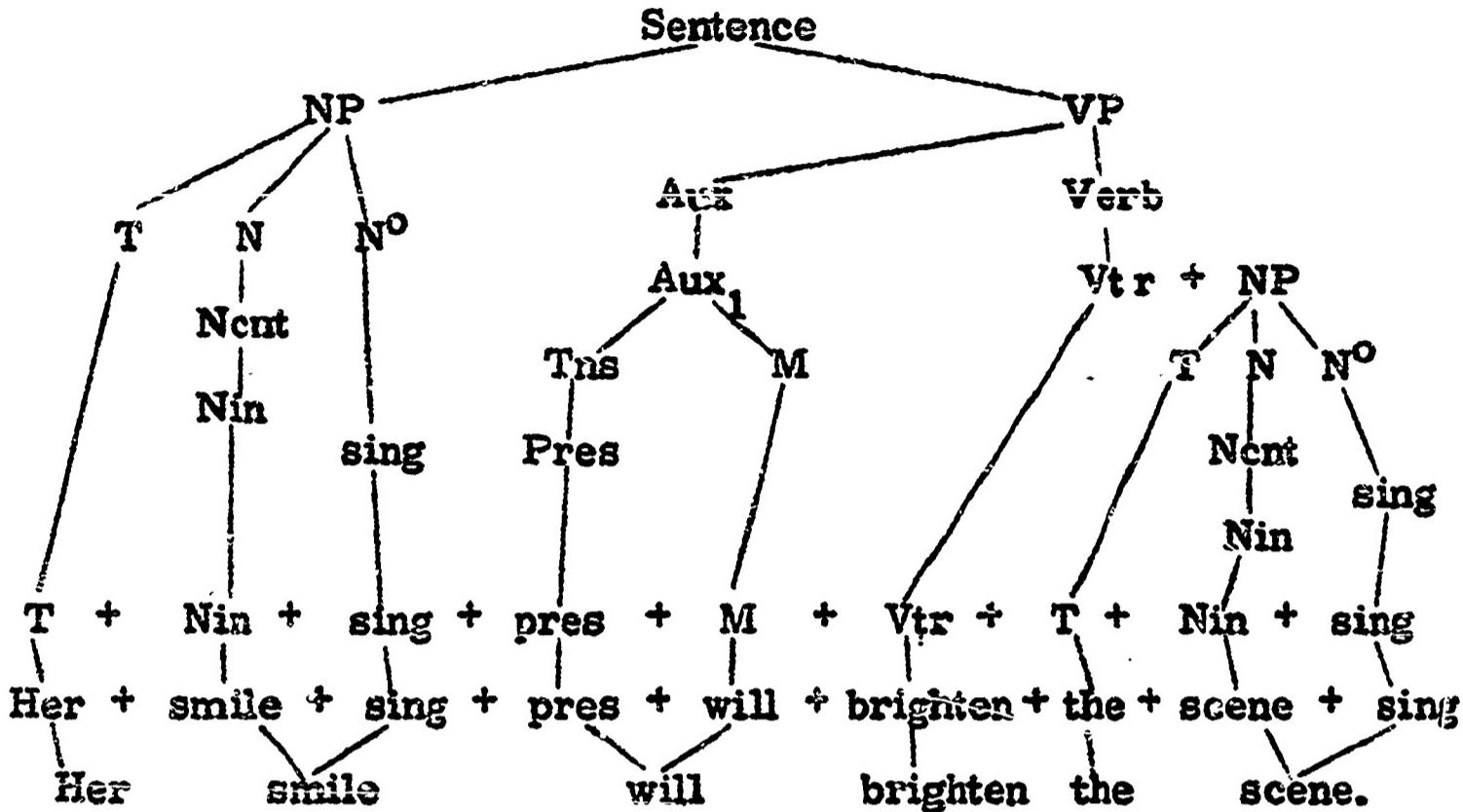
5. Water had been trickling into the basement.



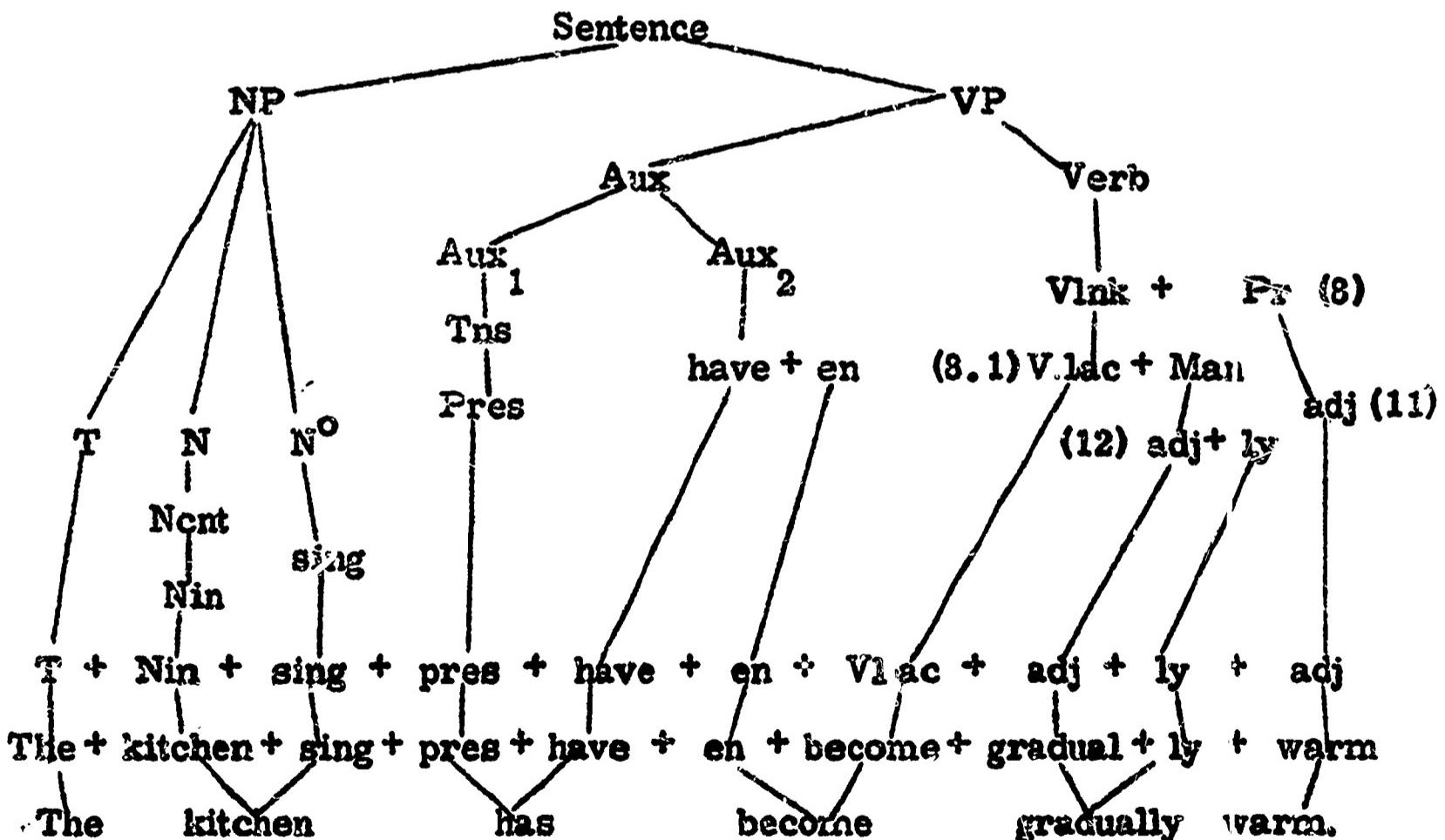
6. The airplane bounced on the runway.



7. Her smile will brighten the scene.

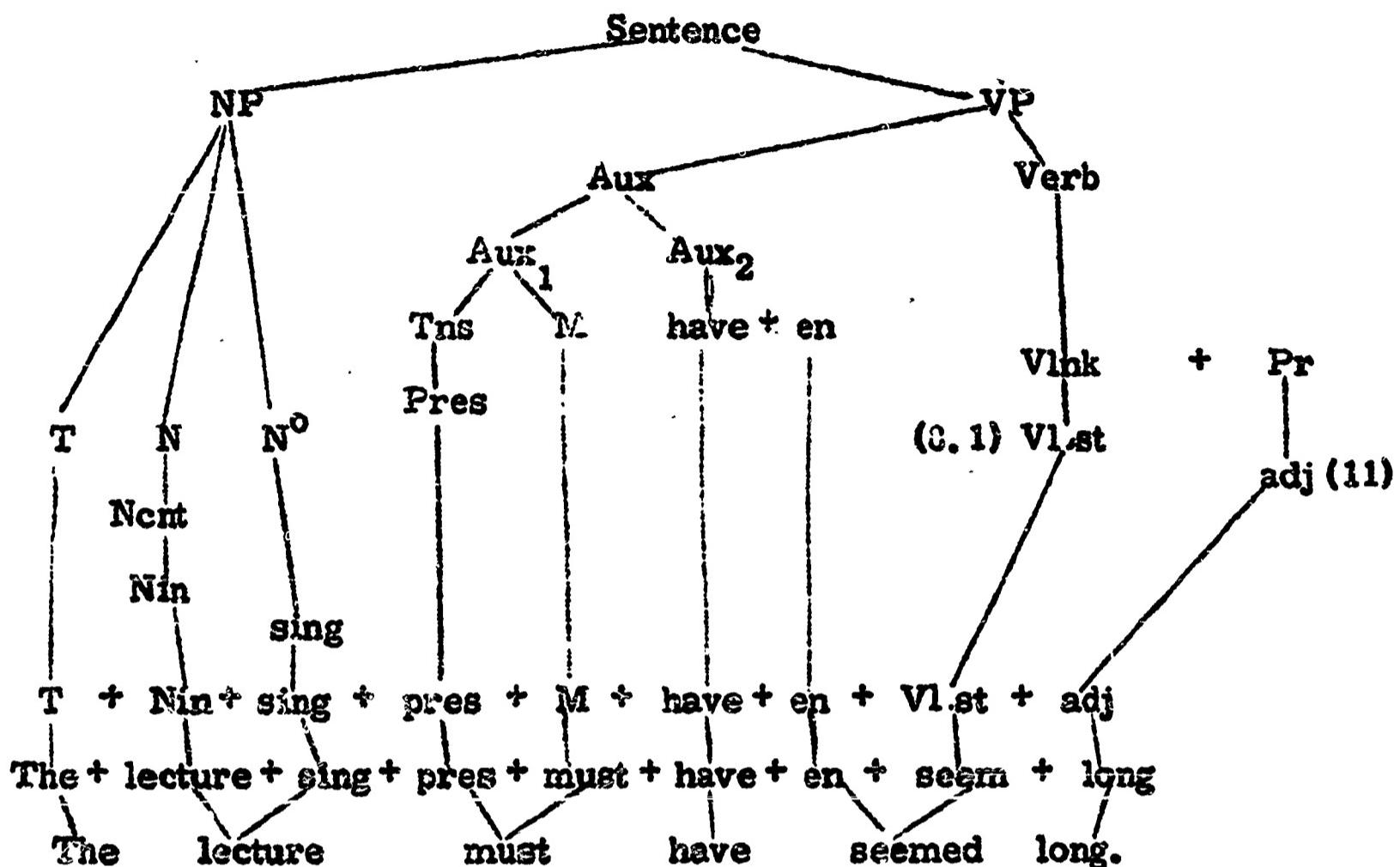


#8. The kitchen has become warm gradually. (Transform)
The kitchen has become gradually warm. (Kernel)

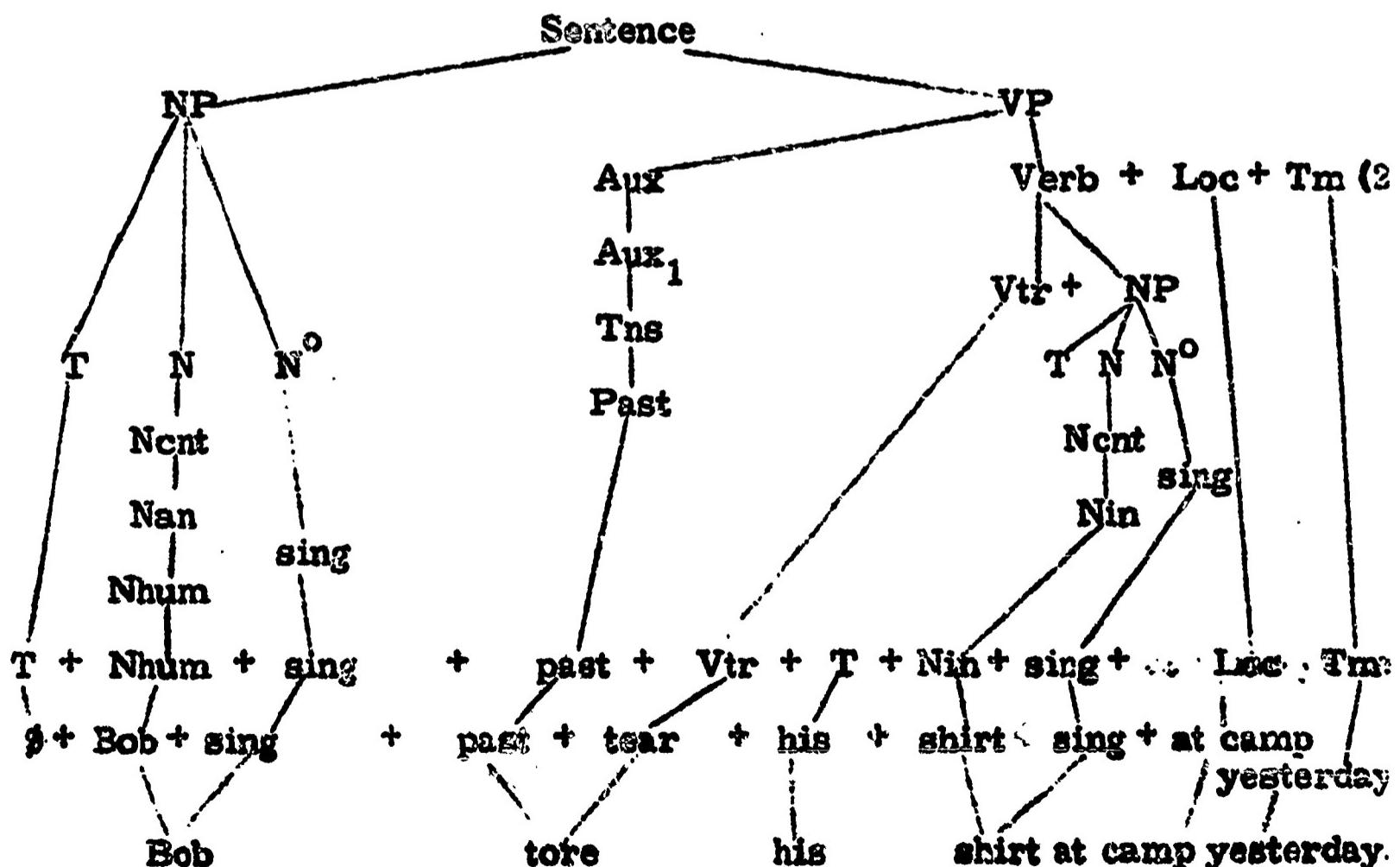


(Many students will probably find this sentence difficult. It is a transformation, since Man is generated before Pr.)

9. The lecture must have seemed long.



10. Bob tore his shirt at camp yesterday.



FROM PHRASE STRUCTURE TO TRANSFORMATION

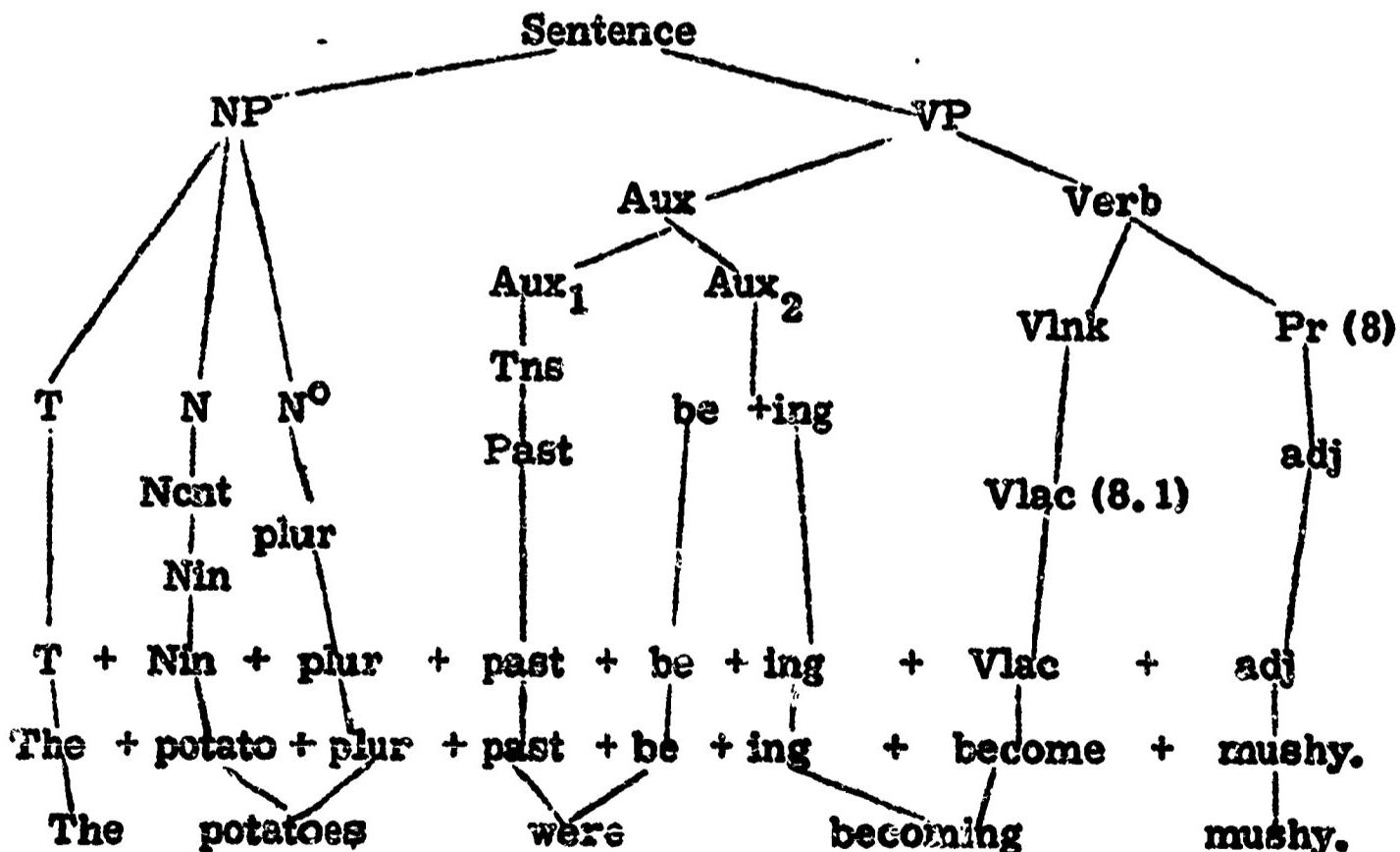
This material eases students into the study of transformations by having them reject as kernels all sentences which contain elements not explained by phrase structure rules which we have developed so far. Of course, this should not imply that nothing more can be added to the rules. They will be expanded greatly in later years as more basic elements of the kernel are identified. However, based on the elements the students now recognize they are asked to decide what can not be called a kernel. This in turn leads them to look at a double-base transformation, the result of combining two or more kernel sentences. Then a simple review of two reordering processes used earlier in developing the phrase structure rules introduces the single-base transformation.

Exercise 1: Page 14

- A. Students should omit Sentence 3 in this assignment. (It contains an element which will come in later through (10.2), but it is still a kernel sentence.) In order to write the terminal strings it might be a good idea to have your students diagram as many sentences as they are able to. Sentences 1 and 10 are not kernels. Attempts to diagram them should prove this to students.

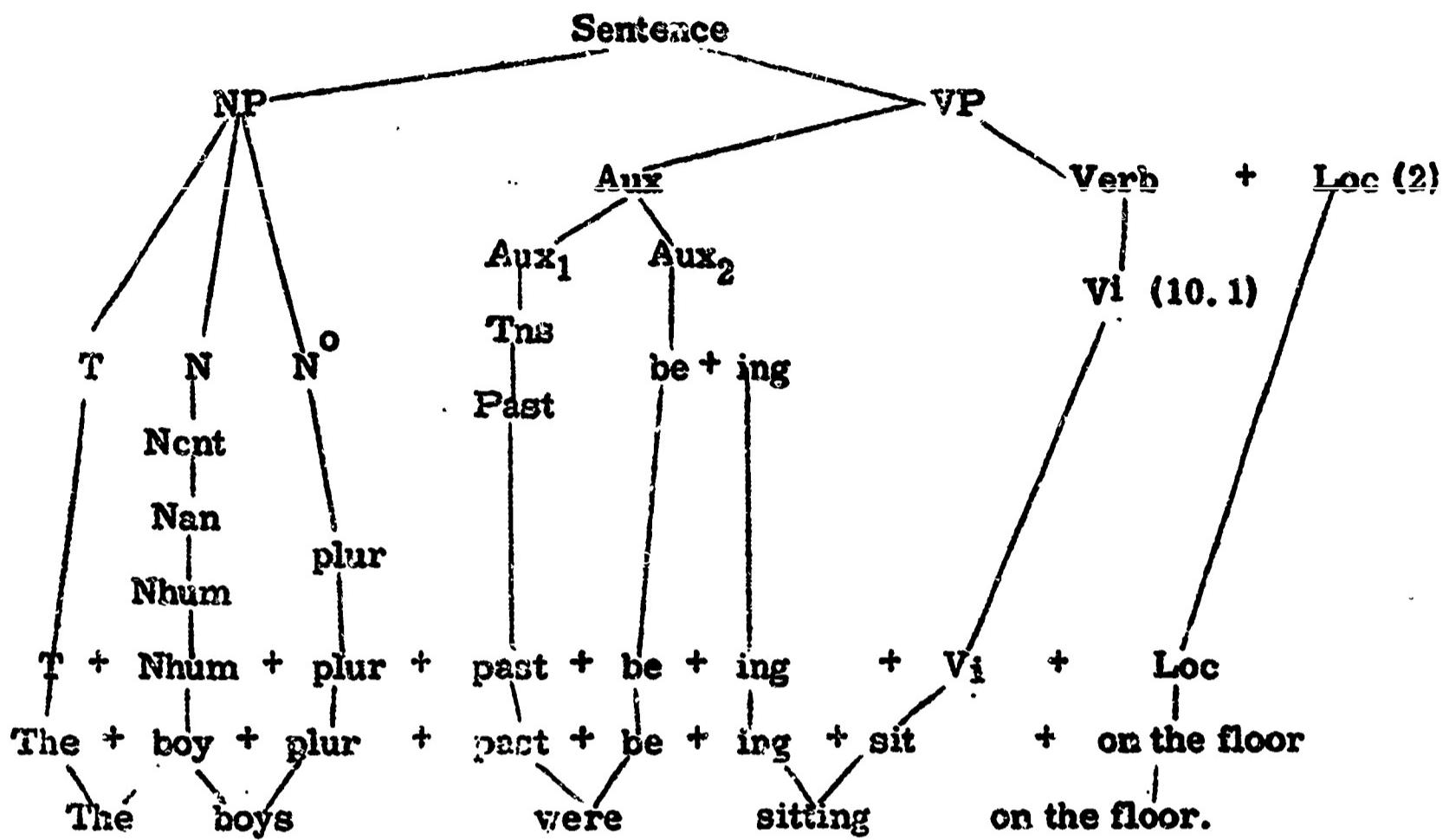
1. Question transformation.
 3. Omit kernel from consideration.
 10. Passive transformation.

2. The potatoes were becoming mushy.

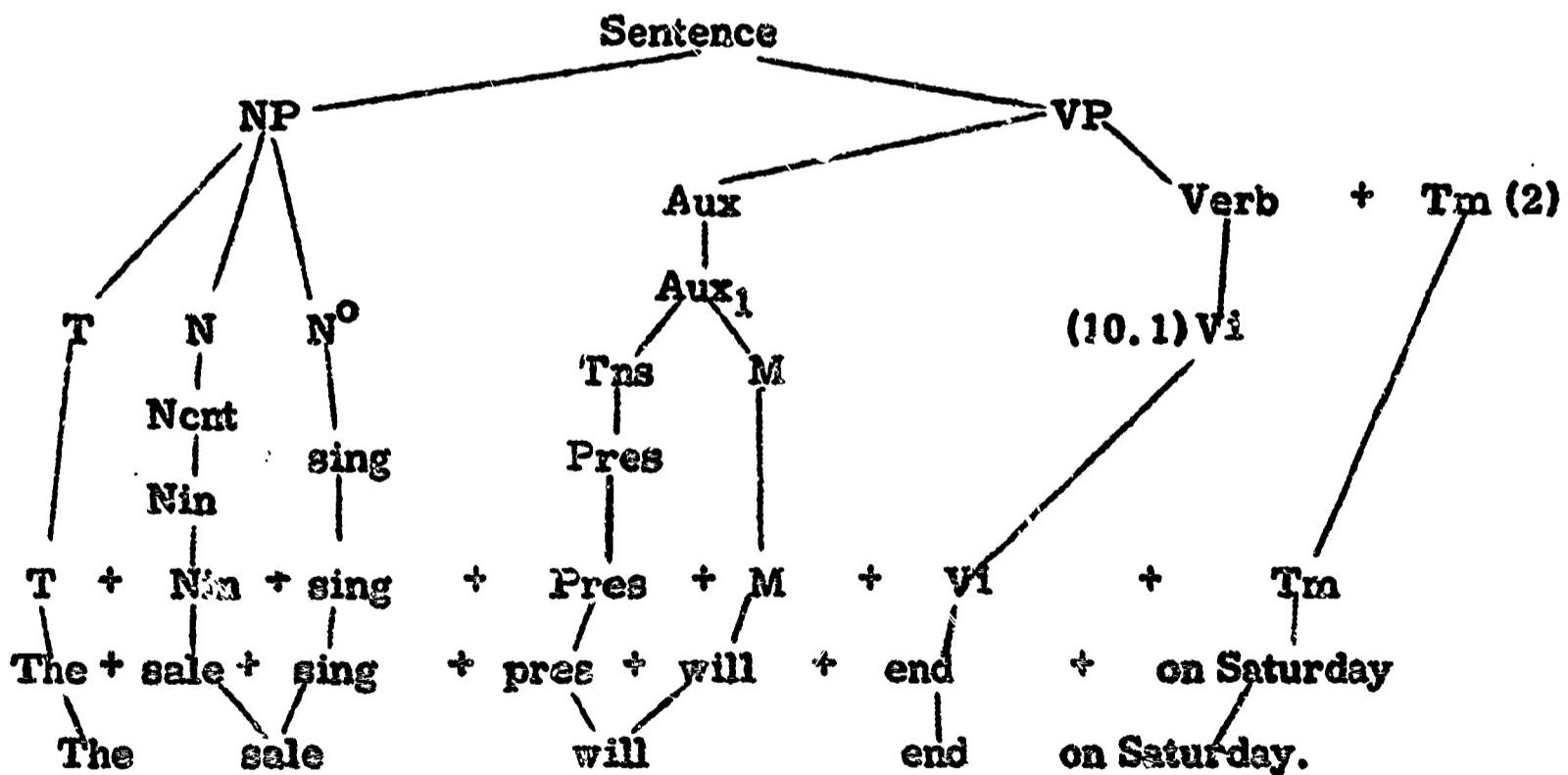


- #3. Although students cannot diagram this, it is not a transformation. Rather it contains an element, the indirect object, which comes in through (10.2) (to be introduced later.)

4. The boys were sitting on the floor.

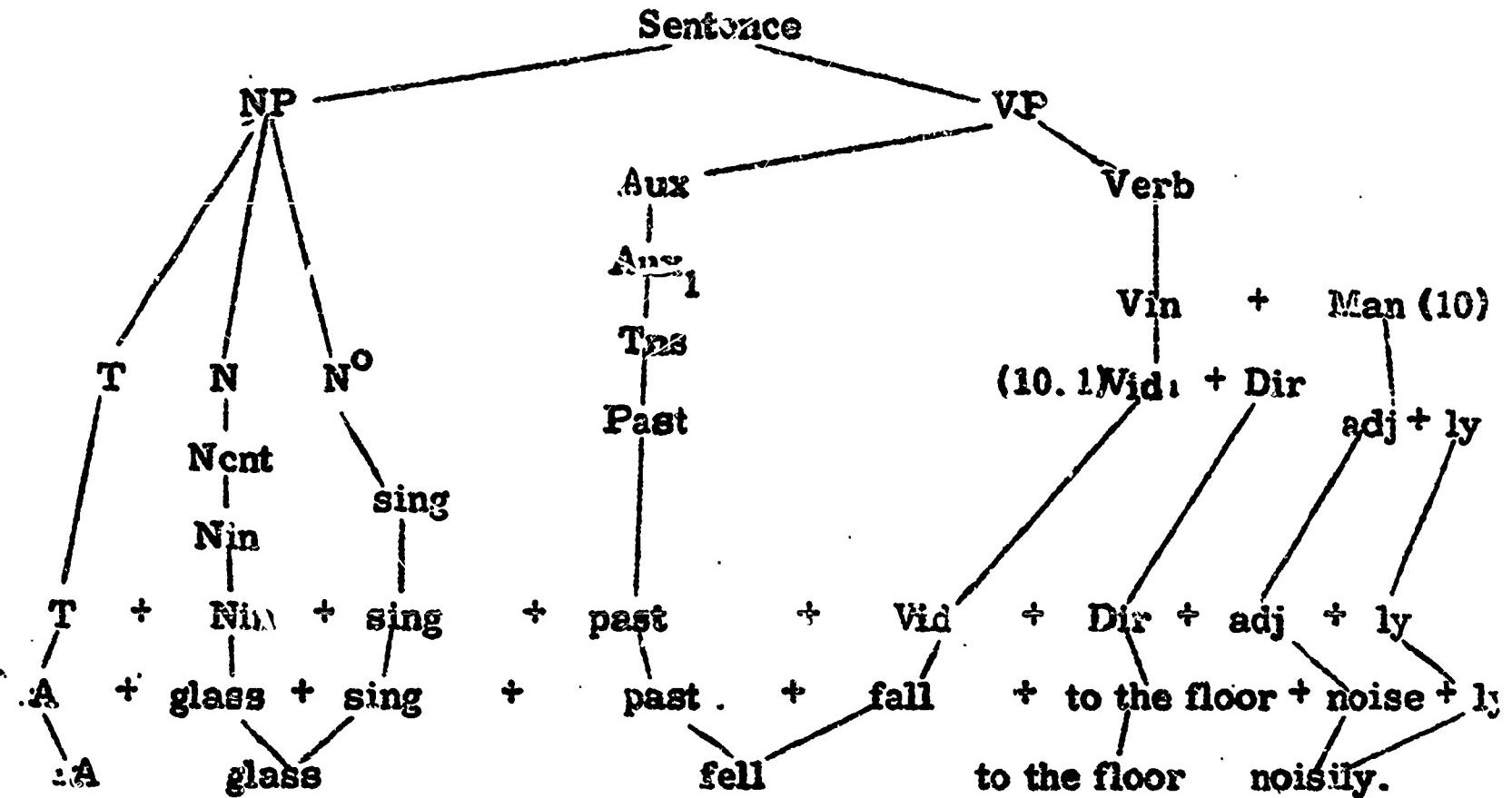


5. The sale will end on Saturday.

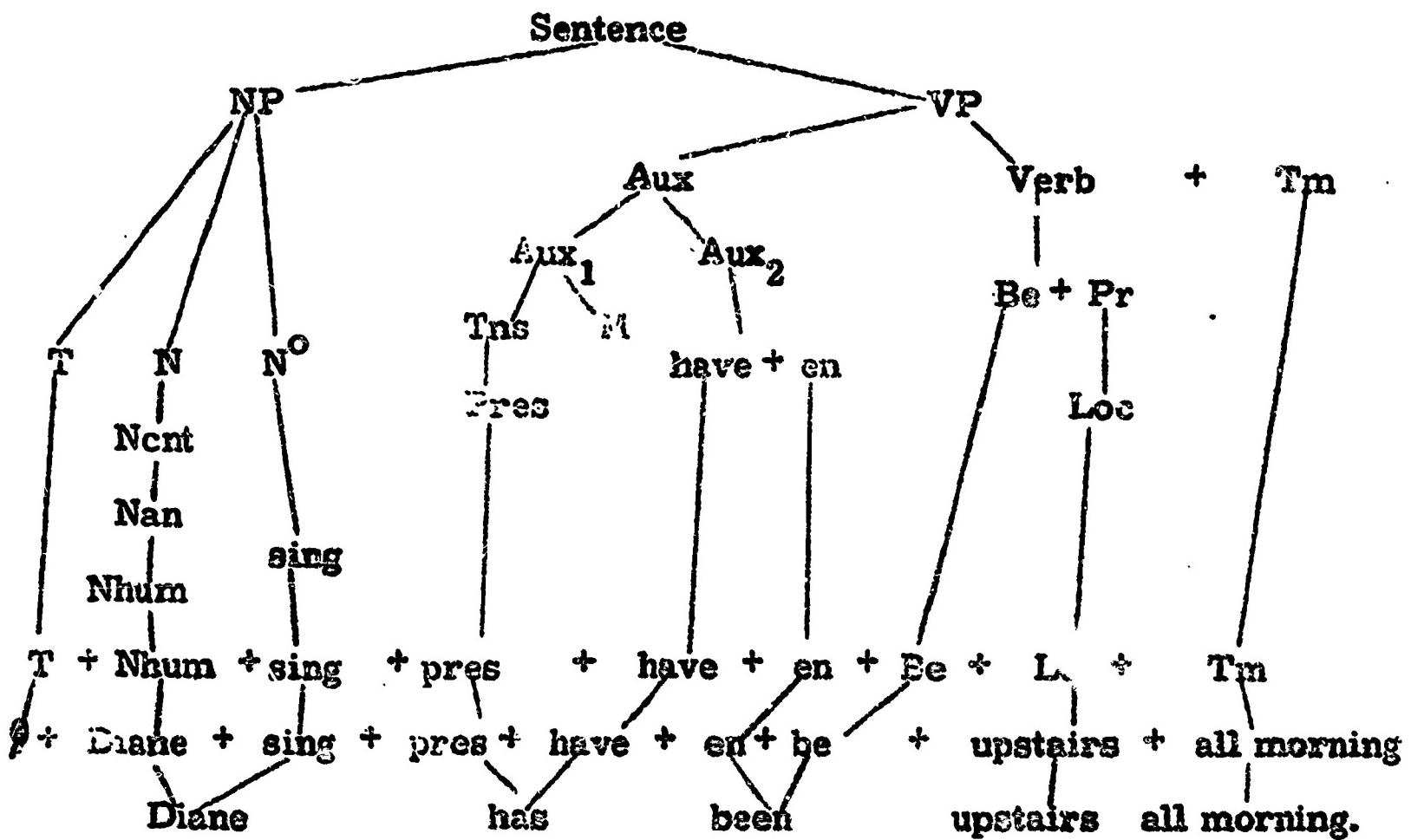


Note: The exercise calls for reducing to the terminal symbols. However, we have diagrammed the sentence completely for you here.

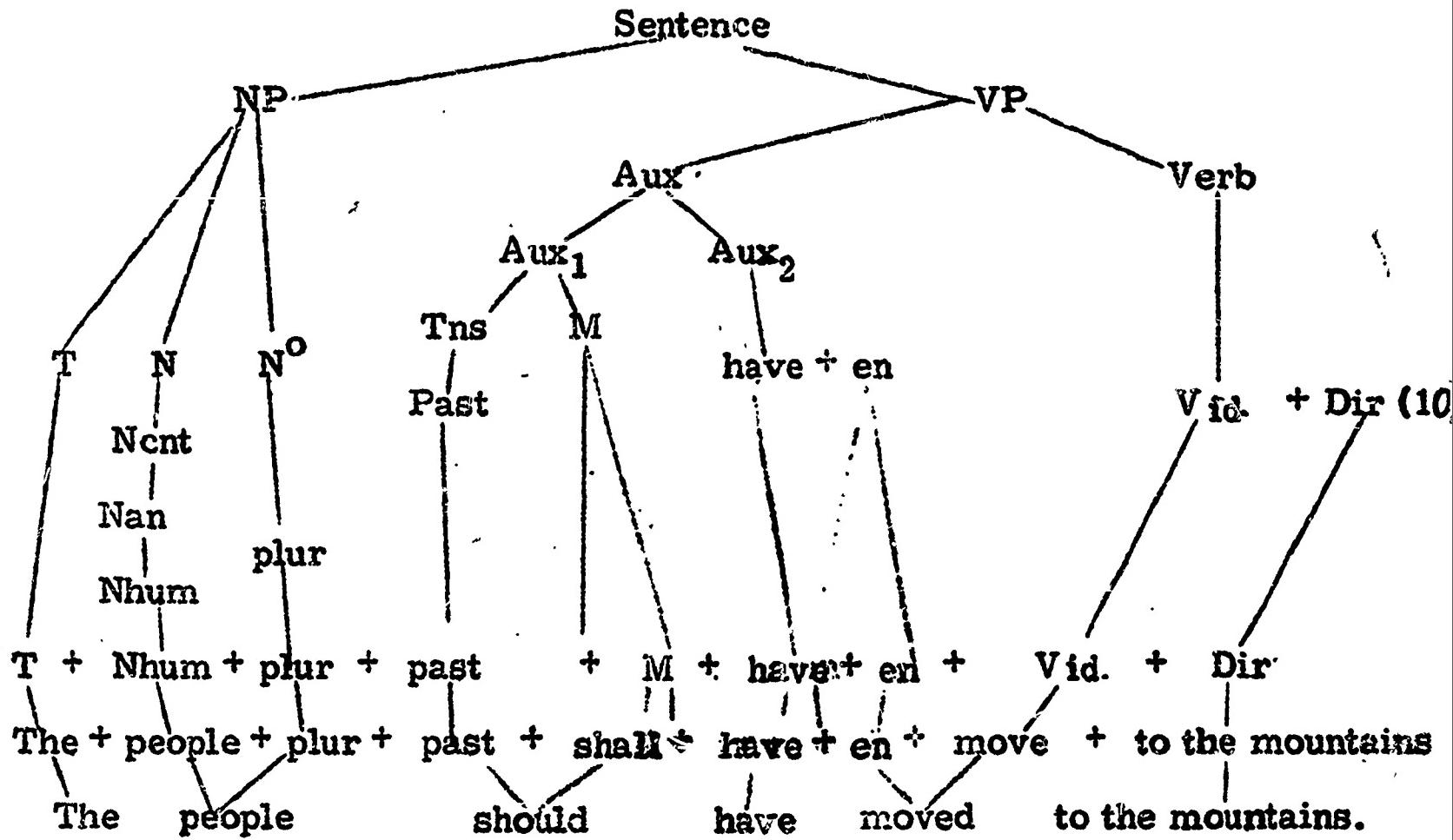
c. A glass fell to the floor noisily.



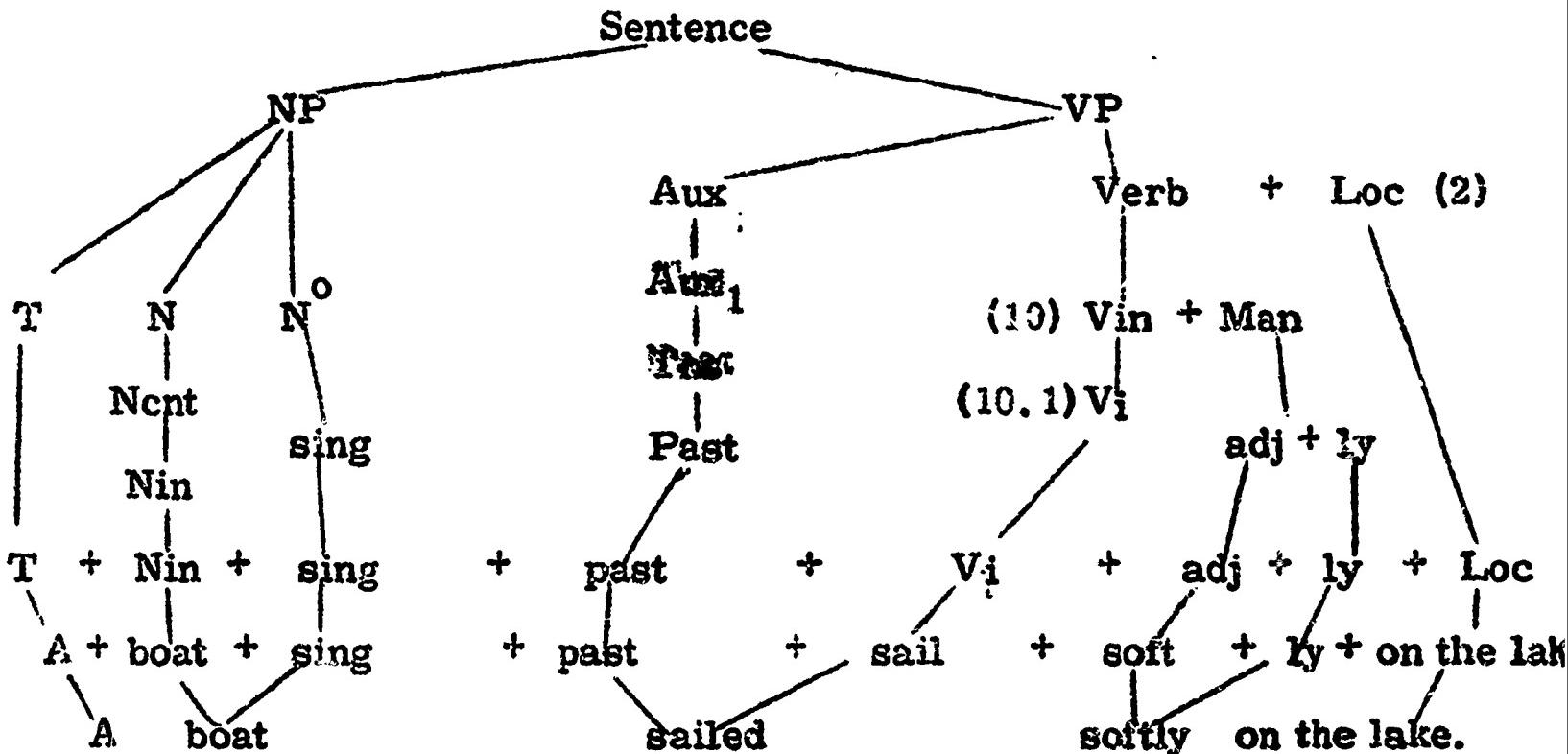
7. Diane has been upstairs all morning.



5. The people should have moved to the mountains.



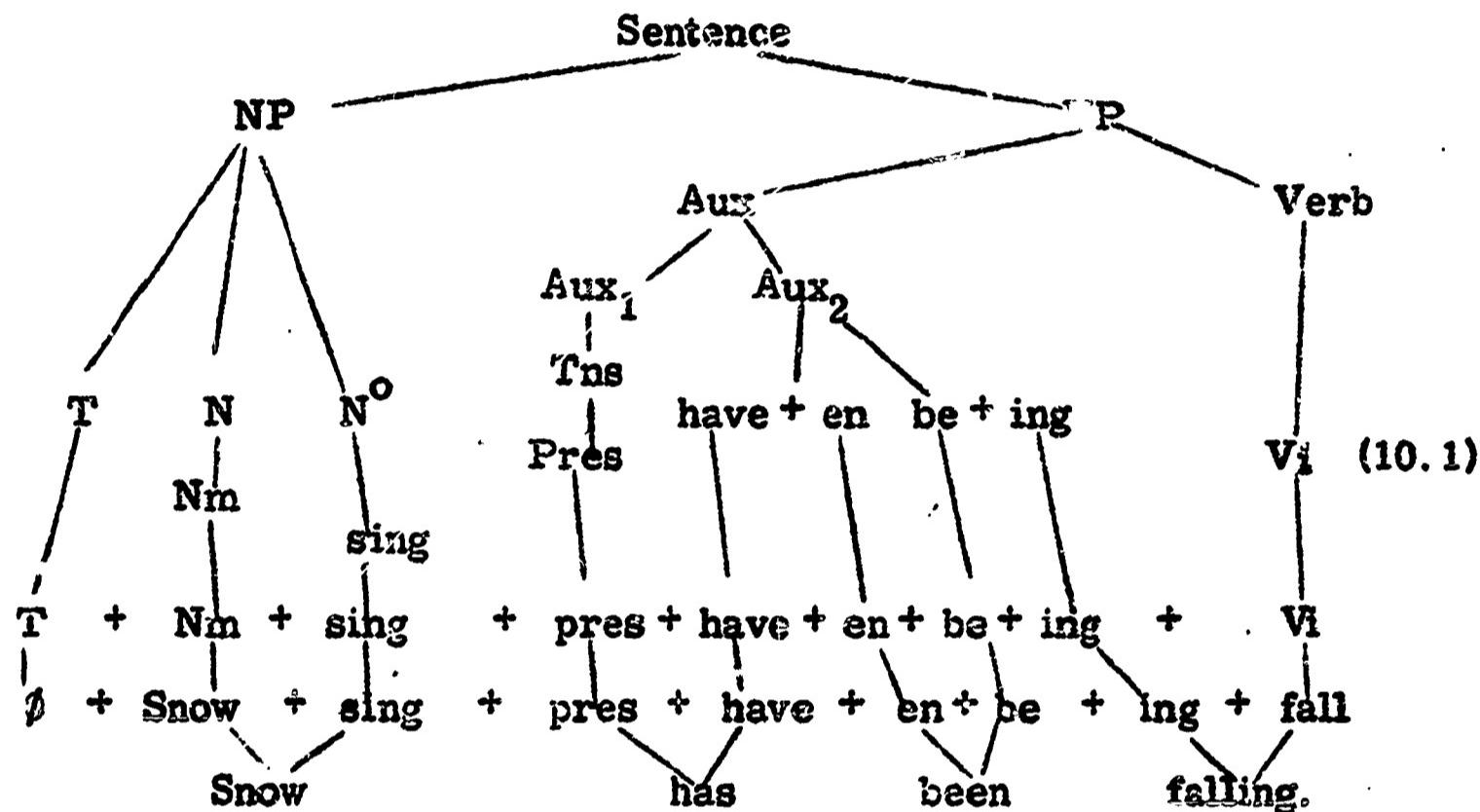
9. A boat sailed softly on the lake.



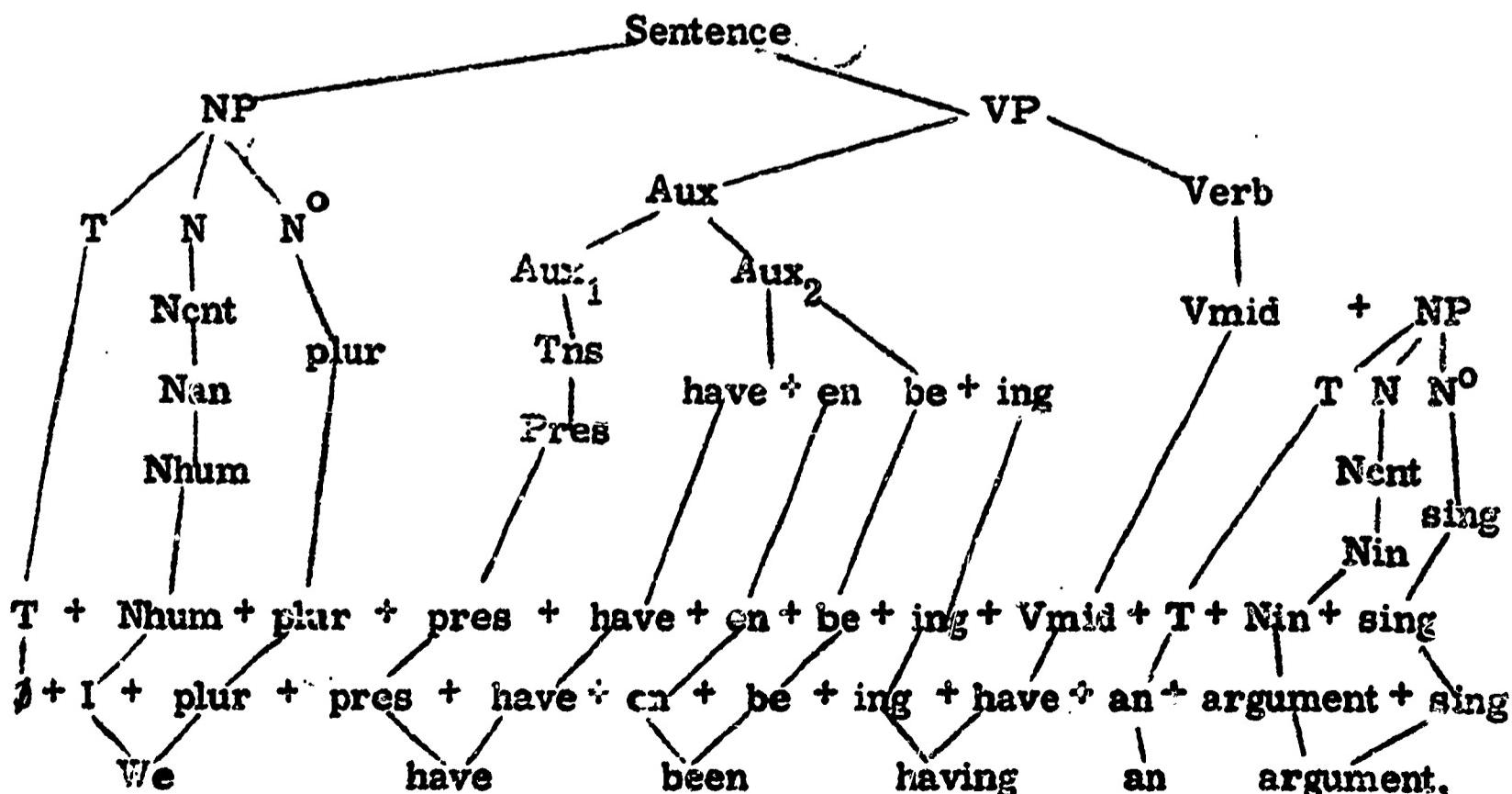
B. Sentences 4, 6, 7, 9, and 10 are transformations. As you will notice, several of the transforms are derived from kernel sentences in the exercises.

4. Passive
6. Question
7. Double base transformation which includes the embedded appositive Kidnapped.
9. Question
10. Question

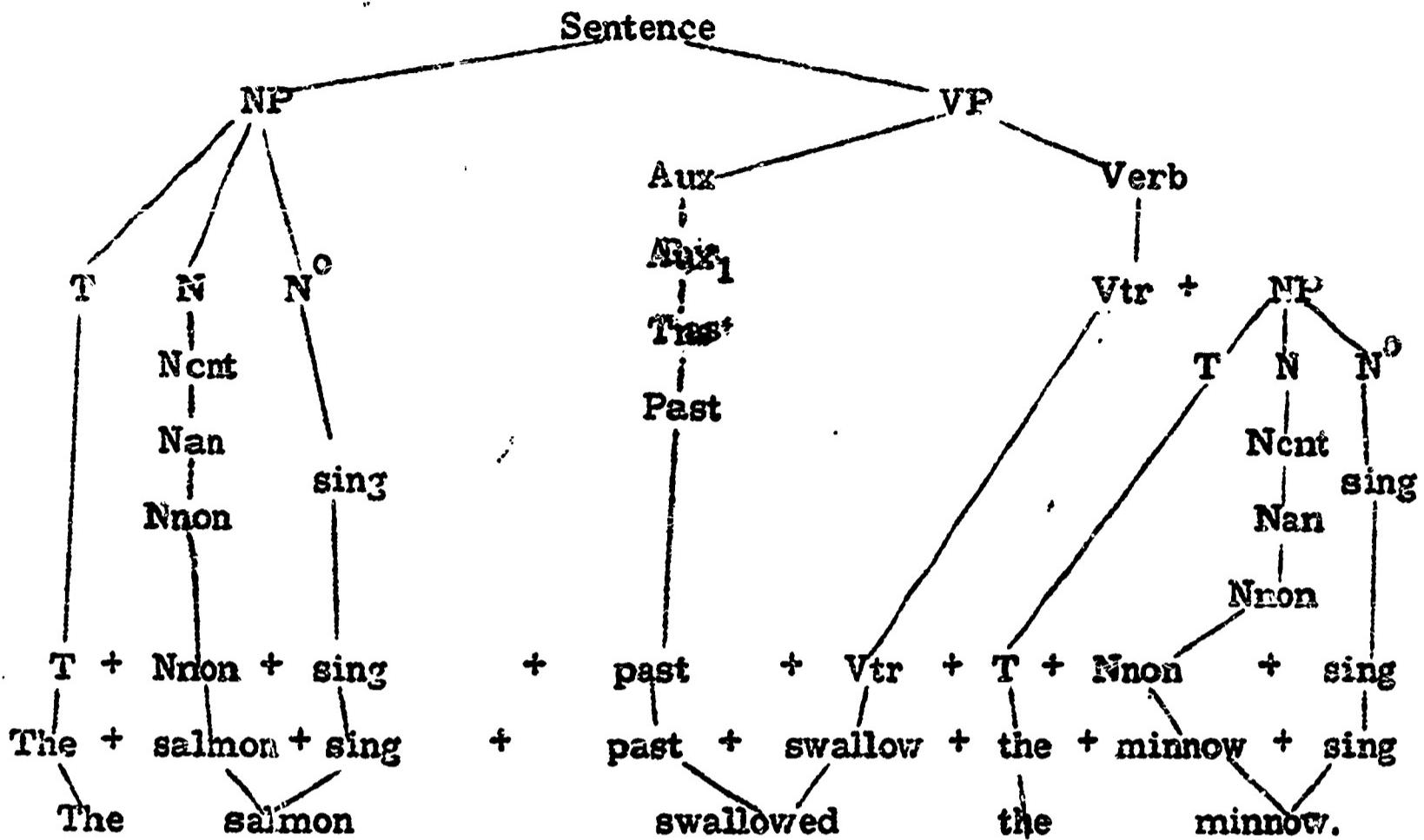
1. Snow has been falling.



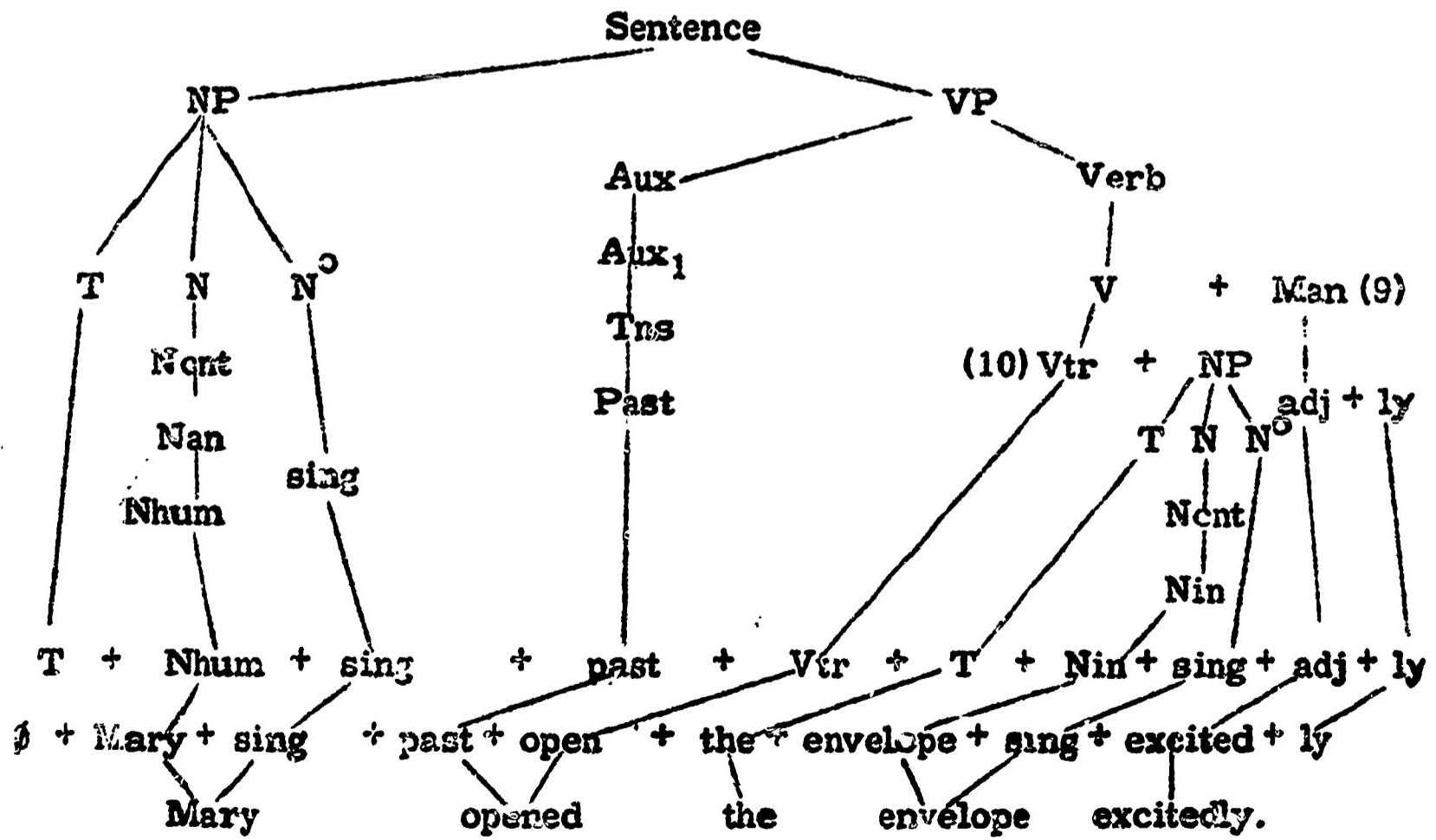
2. We have been having an argument.



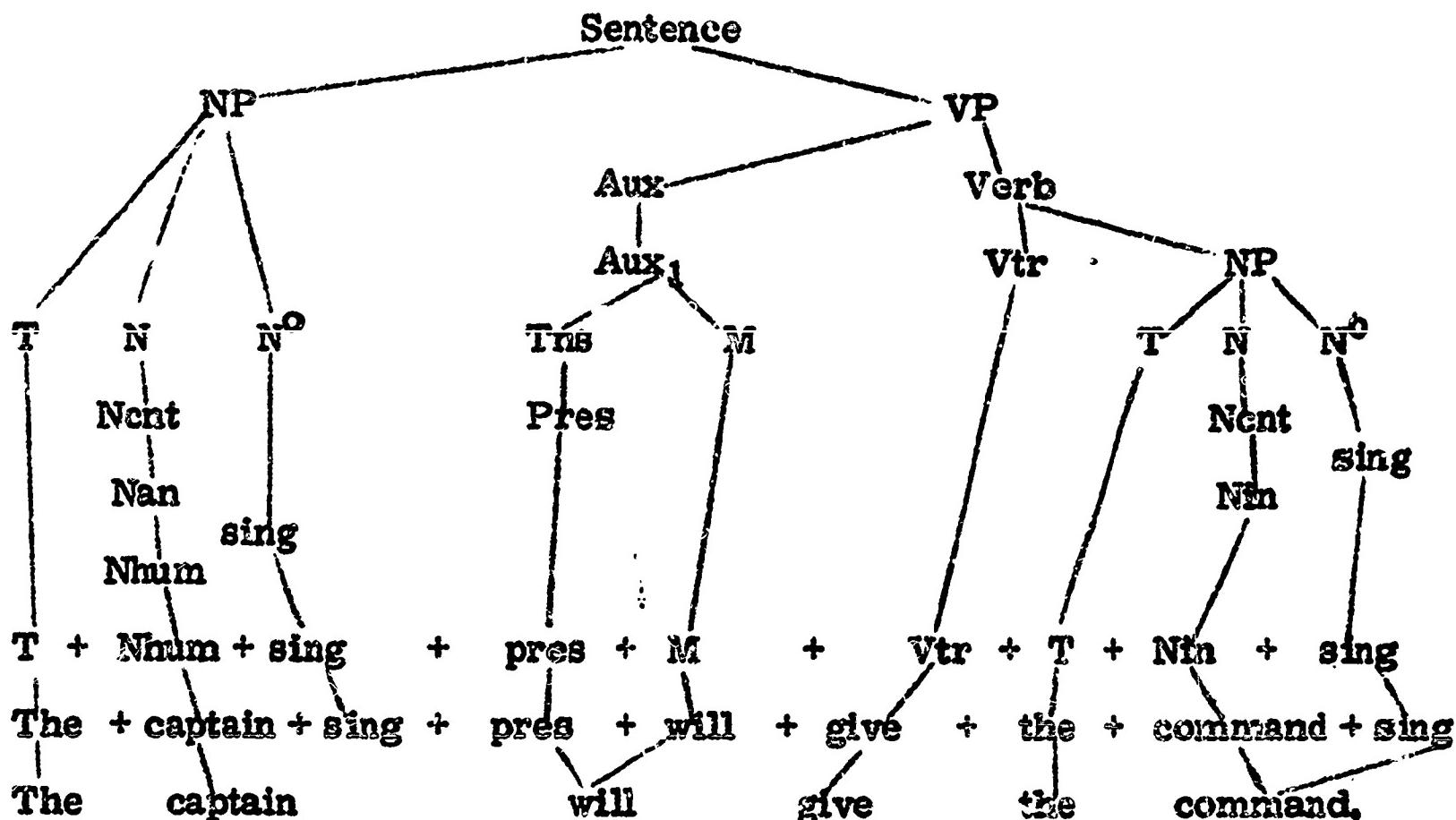
3. The salmon swallowed the minnow.



5. Mary opened the envelope excitedly.



8. The captain will give the command.



SINGLE-BASE TRANSFORMATIONS

THE PASSIVE TRANSFORMATION

In the passive transformation, as it is framed in the student version, there is a change in the order of the items and the addition of new items. These new items have their origin in the transformation itself.
The passive transformation can be described by the following rule:

Tpase, $NP^1 + Aux + V_{tr} + NP^2 \Rightarrow NP^2 + Aux + be + en + V_{tr} + by + NP^1$

The be + en after the Aux and the by before NP¹ are added by the transformation. e.g:

- (1) The dog bit the boy
 - (2) The boy was bitten by the dog.

The be which combines with the past tense to produce was in (2) is added by the transformation. So also are the en of bitten, and by.

Note that the Aux of both (1) and (2) is the past tense. (1) could be represented as

The dog + past + bite + the boy

while (2) could be represented as

The boy + past + be + en + bite + by the dog

This is another instance of the generalization that tense always attaches to the first element of the VP.

Notice that the transformational arrow (\longrightarrow) is different from the phrase structure arrow (\rightarrow); they are different because they imply different processes of change. The latter is understood to mean 'is rewritten as' and operates on only one term of a string at a time. The transformational arrow means 'becomes through structural change'; it does not operate on individual terms of the string but on the whole string and its associated tree graph or branching diagram, turning it into a new (transformed) string and branching diagram.

If a student should inquire about such structures as (3) The boy was bitten, it should be explained that a transformation can be applied optionally to delete the by + NP² phrase from passive transforms. (3) could thus be derived from (2).

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Only (d) can be made passive. Students should see that three changes occur in the passive: NP¹ and NP² are reversed in position; be + en is inserted between Aux and Vtr; and by is inserted before NP¹. Sentence 4 cannot be made passive because the verb is Vlnk; Sentence 6 has a Be verb, and #9 contains a Vmid.

Exercise 1: Page 17-18

- A. This exercise provides an opportunity for students to transform NP¹ + Vtr + NP² to the passive. The emphasis here is on the shift in word order and the insertion of elements rather than on a complete analysis of a kernel.

1. $\begin{array}{c} \text{NP}^1 + \text{past} + \text{limit} + \text{NP}^2 \\ + \text{by} + \text{NP}^1 \\ \text{by fog.} \end{array}$ $\begin{array}{c} \text{NP}^2 + \text{past} + \text{be} + \text{en} + \text{limit} \\ \text{The visibility was limited} \end{array}$
2. $\begin{array}{c} \text{NP}^1 + \text{past} + \text{have} + \text{en} + \text{clear} + \text{NP}^2 \\ \text{Loggers had} \qquad \qquad \qquad \text{cleared} \qquad \qquad \qquad \text{the land} \\ + \text{en} + \text{be} + \text{en} + \text{clear} + \text{by} + \text{NP}^1 \\ \text{been} \qquad \text{cleared} \qquad \text{by loggers.} \end{array}$ $\begin{array}{c} \text{NP}^2 + \text{past} + \text{have} \\ \text{The land had} \end{array}$
3. $\begin{array}{c} \text{NP}^1 + \text{pres} + \text{M} + \text{accept} + \text{NP}^2 \\ \text{The students must} \qquad \qquad \qquad \text{accept the responsibility} \\ + \text{NP}^2 + \text{pres} + \text{M} + \text{be} + \text{en} + \text{accept} + \text{by} + \text{NP}^1 \\ \text{The responsibility must be} \qquad \qquad \qquad \text{accepted} \qquad \qquad \qquad \text{by the students.} \end{array}$
4. $\begin{array}{c} \text{NP}^1 + \text{past} + \text{spray} + \text{NP}^2 \\ \text{The waves sprayed the highway} \\ + \text{past} + \text{be} + \text{en} + \text{spray} + \text{by} + \text{NP}^2 \\ \text{was} \qquad \qquad \qquad \text{sprayed} \qquad \qquad \qquad \text{by the waves.} \end{array}$ $\begin{array}{c} \text{NP}^2 + \\ \text{The highway} \end{array}$
5. $\begin{array}{c} \text{NP}^1 + \text{past} + \text{M} + \text{refund} + \text{NP}^2 \\ \text{The theatre might refund the money} \\ + \text{NP}^2 + \text{past} + \text{M} + \text{be} + \text{en} + \text{refund} + \text{by} + \text{NP}^1 \\ \text{The money might be refunded} \qquad \qquad \qquad \text{by the theatre.} \end{array}$
6. $\begin{array}{c} \text{NP}^1 + \text{pres} + \text{M} + \text{have} + \text{en} + \text{eat} + \text{NP}^2 \\ \text{Adam must have eaten an apple} \\ + \text{have} \qquad \qquad \qquad \text{eaten} \qquad \qquad \qquad \text{an apple} \end{array}$ \Rightarrow

$NP^2 + pres + L + have + en + be + en + eat + by + NP^2$
 An apple must have been eaten by Adam.

7. $NP^1 + past + dismiss + NP^2 \Rightarrow NP^2 +$
 The judge dismissed the case \Rightarrow The case
 $past + be + en + dismiss + by + NP^1$
 was dismissed by the judge

8. $NP^1 + past + follow + NP^2 \Rightarrow NP^2 + past + be$
 Children followed the piper \Rightarrow The piper was
 $+ en + follow + by + NP^1$
 followed by children.

9. $NP^1 + pres + L + freeze + NP^2 \Rightarrow NP^2 +$
 The cook will freeze the pies \Rightarrow The pies
 $pres + M + be + en + freeze + by + NP^2$
 will be frozen by the cook.

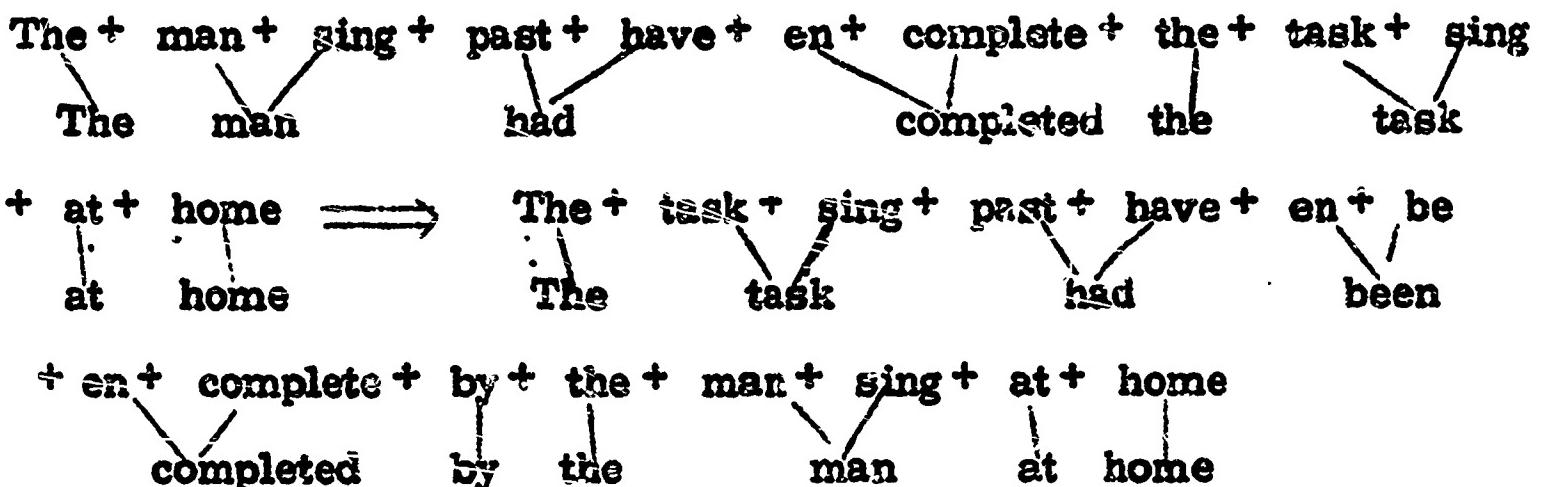
10. $NP^1 + past + L + have + en + take + NP^2 \Rightarrow$
 Karsh would have taken some pictures
 $NP^2 + past + M + have + en + be + en + take + by + NP^2$
 Some pictures would have been taken by Karsh.

- B. Several sentences in this part of the exercise will be too difficult for any but the most perceptive student. A more complete statement of the passive rule would need to allow for the optional elements of Man, Loc, and Tm, which are included in Sentences 2, 4, 5, 6, 7, and 10. (All students should omit Sentence 8 because it contains an indirect object, which will be accounted for later in Rule 10.2). If we let X equal all elements that are allowed in phrase structure rules to be placed between the subject and lexical verb,

and Y equal the adverbials permitted in post object position (Man, Loc, Tm), a more adequate rule would show

$$NP^1 + X + V_{tr} + NP^2 + Y \Rightarrow NP^2 + X + be + en + V_{tr} + by + NP^1 + Y$$

This rule then describes what happens to the following string and all strings of the same general nature:



If you do assign the sentences with optional elements get students to see that any change in the passive transformation of the order of Man, Loc, Tm as set up in the phrase structure rules would actually require a second transformation, which is not asked for at this time.

1. $NP^1 + pres + M + drink + NP^2$
 The winners will drink the lemonade \Rightarrow The lemonade
 $+ pres + M + be + en + drink + by + NP^1$
 will be drunk by the winners
2. $NP^1 + past + drive + NP^2 + Loc$
 Mother drove the car through the garage \Rightarrow
 $NP^2 + past + be + en + drive + by + NP^1 + Loc$
 The car was driven by mother through the garage.
3. $NP^1 + past + be + ing + tell + NP^2$
 Gregory Peck was telling the story \Rightarrow
 $NP^2 + past + be + ing + be + en + tell + by + NP^1$
 The story was being told by Gregory Peck.

4. $\begin{array}{c} \text{NP}^1 + \text{pres} + \text{M} + \text{do} + \text{NP}^2 + \text{adj} + \text{ly} \\ | \quad | \quad | \quad | \quad | \quad | \quad | \\ \text{He} \quad \text{can} \quad \text{do} \quad \text{the job} \quad \text{quietly} \end{array} \Rightarrow \begin{array}{c} \text{NP}^2 + \\ | \\ \text{The job} \end{array}$
- $\begin{array}{c} \text{pres} + \text{M} + \text{be} + \text{en} + \text{do} + \text{by} + \text{NP}^1 + \text{adj} + \text{ly} \\ | \quad | \quad | \quad | \quad | \quad | \quad | \\ \text{can} \quad \text{be} \quad \text{done} \quad \text{by} \quad \text{hit} \quad \text{quietly} \end{array}$
5. $\begin{array}{c} \text{NP}^1 + \text{past} + \text{ride} + \text{NP}^2 + \text{Loc} + \text{Tm} \\ | \quad | \quad | \quad | \quad | \quad | \\ \text{The girl} \quad \text{rode} \quad \text{a stallion} \quad \text{in the race yesterday} \end{array} \Rightarrow$
- $\begin{array}{c} \text{NP}^2 + \text{past} + \text{be} + \text{en} + \text{ride} + \text{by} + \text{NP} + \text{Loc} + \text{Tm} \\ | \quad | \quad | \quad | \quad | \quad | \quad | \\ \text{A stallion} \quad \text{was} \quad \text{ridden} \quad \text{by} \quad \text{the girl} \quad \text{in the race yesterday.} \end{array}$
6. $\begin{array}{c} \text{NP}^1 + \text{pres} + \text{know} + \text{NP}^2 + \text{Man} \\ | \quad | \quad | \quad | \quad | \\ \text{An astronomer} \quad \text{knows} \quad \text{stars} \quad \text{well} \end{array} \Rightarrow \begin{array}{c} \text{NP}^2 \\ | \\ \text{Stars} \end{array}$
- $\begin{array}{c} + \text{pres} + \text{be} + \text{en} + \text{know} + \text{by} + \text{NP}^1 + \text{Man} \\ | \quad | \quad | \quad | \quad | \quad | \\ \text{are} \quad \text{known} \quad \text{by} \quad \text{an astronomer well.} \end{array}$
- (Students will note that an additional transformation is needed here to place Man (well) before by.)
7. $\begin{array}{c} \text{NP}^1 + \text{past} + \text{spill} + \text{NP}^2 + \text{Loc} \\ | \quad | \quad | \quad | \quad | \\ \text{Cassie} \quad \text{spilled} \quad \text{the syrup} \quad \text{on the floor} \end{array} \Rightarrow \begin{array}{c} \text{NP}^2 + \\ | \\ \text{The syrup} \end{array}$
- $\begin{array}{c} \text{past} + \text{be} + \text{en} + \text{spill} + \text{by} + \text{NP}^1 + \text{Loc} \\ | \quad | \quad | \quad | \quad | \quad | \\ \text{was} \quad \text{spilled} \quad \text{by} \quad \text{Cassie} \quad \text{on the floor.} \end{array}$
8. Students should omit this sentence because it contains two NP^2 's which will be accounted for later in (10.2).
9. $\begin{array}{c} \text{NP}^1 + \text{pres} + \text{M} + \text{have} + \text{en} + \text{call} + \text{NP}^2 \\ | \quad | \quad | \quad | \quad | \quad | \\ \text{The operator} \quad \text{must} \quad \text{have} \quad \text{called} \quad \text{the police} \end{array} \Rightarrow$
- $\begin{array}{c} \text{NP}^2 + \text{pres} + \text{M} + \text{have} + \text{en} + \text{be} + \text{en} + \text{call} + \text{by} + \text{NP}^1 \\ | \quad | \quad | \quad | \quad | \quad | \quad | \\ \text{The police} \quad \text{must} \quad \text{have} \quad \text{been} \quad \text{called} \quad \text{by} \quad \text{the operator} \end{array}$

NP¹ + pres + M + see + NP² + Tm
10. Millions will see the fair this year ==>
NP² + pres + M + be + en + see + by + NP¹ + Tm
the fair will be seen by millions this year.

QUESTION TRANSFORMATIONS

The next single-base transformation which is taken up this year is the question transformation. It is at once more complicated than the passive transformation, but also more interesting. At the outset there appear to be many kinds of questions, but examination shows that they are all basically related, and after you have led your students to see the basic process, it should be this relatedness that you emphasize. Question transformations present a beautiful example of how economy and simplicity can reveal some general truths about the seeming complexities of our language--about the order that exists in it.

The first kind of question studied is the yes-or-no question which is the underlying question for all the others. To begin with you can see that kernels with Be as their main verb and with no auxiliary other than tense are converted to yes-or-no questions by a process which can be symbolized as follows:

$$NP + tns + Be \dots \Rightarrow tns + Be + NP \dots$$

where . . . indicates an irrelevant context. (Only the part symbolized is important to this transformation, in other words.) Thus,
He was here. \Rightarrow Was he here?

But, as you can see, the rule can also apply without revision to kernels with be as an auxiliary; (Mother was serving waffles. \Rightarrow Was Mother serving waffles?) because what comes after be is not involved in the transformation. Notice here that not all of the be + ing auxiliary is shifted to the initial position in the sentence. The ing stays put.

The rule does not account for such pairs of related sentences as these:

$$\begin{array}{ll} \text{He has gone} & : \text{Has he gone?} \\ \text{He can go} & : \text{Can he go?} \end{array}$$

where Aux₂ consists of have + en on the one hand and M on the other. The rule will have to be changed to:

$$NP + tns + \left\{ \begin{array}{l} M \\ \text{have} \\ \text{be} \end{array} \right\} \dots \Rightarrow tns + \left\{ \begin{array}{l} M \\ \text{have} \\ \text{be} \end{array} \right\} + NP \dots$$

This very general rule (known as T'Q) does not account for one of the most common pairs of related sentences:

$$\text{The cat drinks milk} : \text{Does the cat drink milk?}$$

If we apply the above rule to sentences like "The cat drinks milk" where the VP consists of tns + Vrb with no Aux₂, we get:

$$NP + tns + Vrb \Rightarrow tns + NP + Vrb.$$

But this leaves Tns without a verb to attach itself to. In such situations the grammar of English demands the insertion of do as a dummy to carry Tns. This is known as the do-support transformation. We will not formulate the actual transformation now, because we will find other cases where it will be necessary to add do to produce grammatical English sentences. Therefore we will wait until later to write the rule. At this point it will only be noted.

Questions like the following:

What has the mailman brought?

When are you going?

How did the child behave?

Where has the boy gone?

can all be shown to be derived from the yes-or-no transformation (T_Q). When we take a sentence like

The mailman has brought the package.

and apply T_Q we get

Has the mailman brought the package?

Then by changing the object NP (package) to whom or what (whom if the NP is N_{hum} , what if it is not) we get

*Has the mailman brought what?

This process is called the wh-attachment transformation. It is symbolized by adding wh to the element being questioned. Thus, in the example above wh is added to the object NP.

$T_{ns} + have + NP^1 + en + bring + wh-NP^2$
*Has the mailman brought what?

This is, of course, ungrammatical, and the wh-NP² must be shifted to the front of the sentence in a transformation known as T_{wh} . This gives us:

$wh-NP^2 + tns + have + NP^1 + en + bring$
What has the mailman brought?

The other questions are derived in exactly the same way: applying the yes-or-no transformation (T_Q), attaching wh, bringing the wh element to the front of the sentence string (T_{wh}). Wh + anything is shifted to the first position in its string. Wh + Man \Rightarrow How.

Wh + Loc \Rightarrow Where.

Wh + Tm \Rightarrow . When

Thus:

T_m
You are going tomorrow \Rightarrow
 T_m
Are you going tomorrow? \Rightarrow

* Are you going when? \Rightarrow
 wh-Tm
When are you going?

The subject questions needs a little further discussion. On the surface it looks as if it would be simpler to formulate a special rule for the subject question, (The mailman has brought the package, \Rightarrow Who has brought the package?) in which the subject is simply replaced by Who or What. But this is a process where simplicity resembles complexity. One should perhaps remember the story of the boy who was relieved of the notion that a straight path is always the shortest way home. To formulate this different rule for the subject question would remove subject questions from the class of related questions and make them somehow different, when we intuitively feel that they are not different from other questions but very closely related to them. And this relatedness can be demonstrated by applying the rules used to formulate the other questions.

Subject questions first go through T_Q just as all other questions do. To prevent that happening would require an extra rule in the grammar. However, when a sentence has gone through T_Q , it no longer has its subject in the place a questioned subject should be.

He should do it, \Rightarrow Should he do it?

By wh-attachment Should he do it? becomes Should wh-he do it? But there is no *Should who do it? So the completely general rule T_{wh} applies to put wh-he at the beginning of the sentence.

Who should do it?

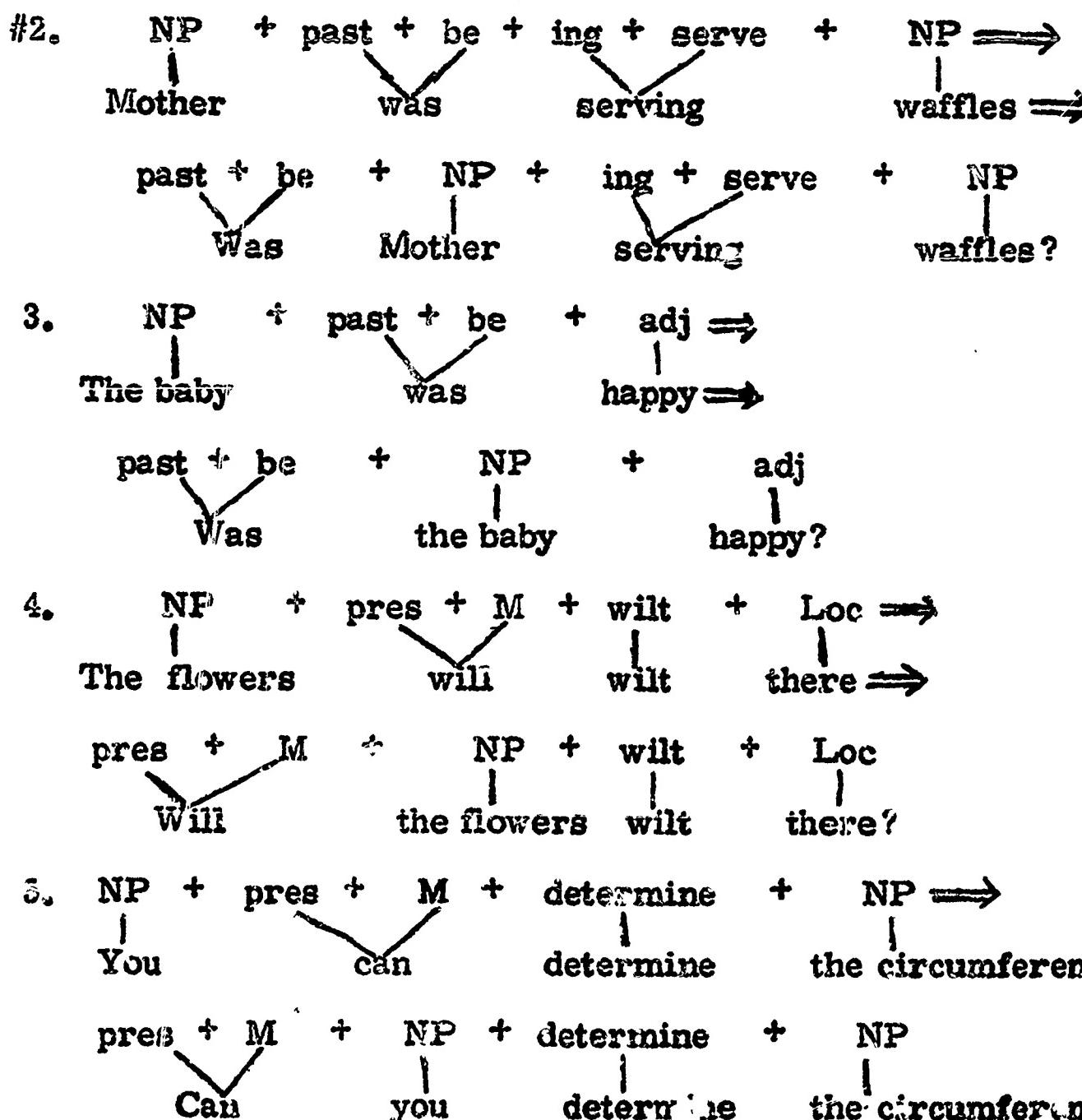
All wh questions then, subject questions included, have the same "history" of derivation: first T_Q , then wh-attachment, then reordering by T_{wh} . To make an exception based on the superficial similarity of word order between declaratives and subject questions would be to add unnecessary extra rules to the grammar.

Whether you wish to take up the subject question with your class at this point will depend on the general ability of the class. It is a good place to make an important point about the grammar--how general rules can cover a good many different sorts of sentences--and also to illustrate how all questions are related. The question transformation will be treated again, at a more complex level, in later years.

Exercise 1: Page 19

1. Has the child broken the wagon?
2. Was mother serving waffles?
3. Was the baby happy?
4. Will the flowers wilt there?
5. Can you determine the circumference?
6. Had Marcia lost the cake?
7. Have the men radioed an S. O. S.?
8. Could Red taste the poison?
9. Might that be the solution?
10. Should the president have named the committee?

Exercise 2: Page 21



#Students may use either Verb or the lexical verb in writing strings for question transformations.

6. NP + past + have + en + lose + NP \Rightarrow
Marcia had lost the cake \Rightarrow

past + have + NP + en + lose + NP
Had Marcia lost the cake?

7. NP + pres + have + en : radio + NP \Rightarrow
The men have radioed an S.O.S. \Rightarrow

pres + have + NP + en + radio + NP
Have the men radioed an S.O.S.?

8. NP + past + M + taste + NP \Rightarrow
Red could taste the poison \Rightarrow

past + M + NP + taste + NP
Could Red taste the poison?

9. NP + past + M + be + NP \Rightarrow
That might be the solution \Rightarrow

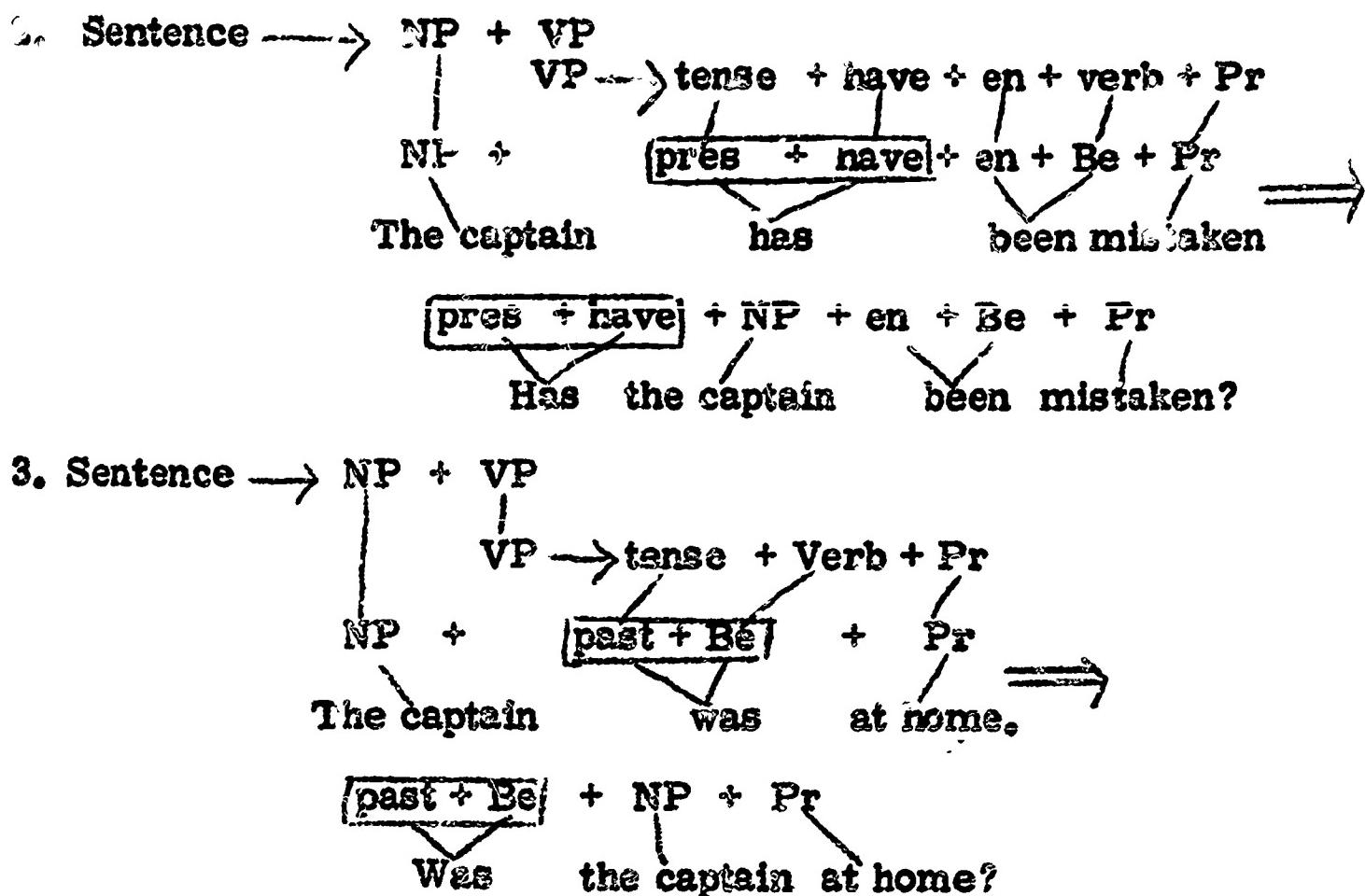
past + M + NP + be + NP
Might that be the solution?

10. NP + past + M + have + en + name + NP \Rightarrow
The president should have named the committee \Rightarrow

past + M + NP + have + en + name + NP
Should the president have named the committee?

Page 22:

The strings of symbols for 2 and 3 would look like this:



Page 23-25.

It should be pointed out that there are actually 2 steps in forming the yes-or-no question in cases where do must be added. First tense moves to the front of the sentence, Then do is added. The two steps are telescoped at this point for the student. Later the sequence will be made more explicit.

#Exercise 3: Page 24-25

A. 1. NP + past + wound + NP

The hunter wounded the cow

past + do + NP + wound + NP

Did the hunter wound the cow?

2. NP + pres + border + NP

The lakes border the park

pres + do + NP + border + NP

Do the lakes border the park?

Since we are primarily interested in the shift which takes place in the question transformation it is not necessary to make detailed symbol strings. The NP's need not be broken down for instance. Instead of verb, you might have your students give the lexical verb so that the special case for the verb be will be clear.

3. NP + pres + seem + adj \Rightarrow
 Josie seems frightened \Rightarrow
 pres + do + NP + seem + adj
 Does Josie seem frightened?
4. NP + pres + contain + NP \Rightarrow
 The vase contains buttermilk \Rightarrow
 pres + do + NP + contain + NP
 Does the vase contain buttermilk?
5. NP + past + pass + NP \Rightarrow past + do + NP + pass + NP
 You passed the test \Rightarrow Did you pass the test?
6. NP + pres + like + NP \Rightarrow
 Cats like popcorn \Rightarrow
 pres + do + NP + like + NP
 Do cats like popcorn?
7. NP + past + swallow + NF \Rightarrow
 Freddie swallowed the gum \Rightarrow
 past + do + NP + swallow + NP
 Did Freddie swallow the gum?
8. NP + pres + look + adj \Rightarrow
 The gooseberries look ripe \Rightarrow
 pres + do + NP + look + adj
 Do the gooseberries look ripe?
- B. 1. NP + past + start + NP \Rightarrow
 Lightening started the fire \Rightarrow
 past + do + NF + start + NP
 Did lightning start the fire?

2. NP + past + be + NP
 A stampede was the result \Rightarrow
 past + be + NP + NP
 Was a stampede the result?
3. NP + pres + have + NP
 The puppets have strings \Rightarrow
 pres + do + NP + have + NP
 Do the puppets have strings?
4. NP + pres + have + en + see + NP
 They have seen the Potomac \Rightarrow
 pres + have + NP + en + see + NP
 Have they seen the Potomac?
5. NP + past + send + NP + adj + ly
 Noah sent a dove hopefully \Rightarrow
 past + do + NP + send + NP + adj + ly
 Did Noah send a dove hopefully?
6. NP + pres + become + adj
 This frosting becomes thick \Rightarrow
 pres + do + NP + become + adj
 Does this frosting become thick?
7. NP + pres + M + suspect + NP + Tm
 The detective will suspect the hero now \Rightarrow
 pres + M + NP + suspect + NP + Tm
 Will the detective suspect the hero now?
8. NP + pres + crumble + adj + ly
 The cookie crumbles easily \Rightarrow
 pres + do + NP + crumble + adj + ly
 Does the cookie crumble easily?
- Review Exercise: Page 28
 1. NP + past + be + ing + trade + NP
 The boys were trading books \Rightarrow

-48-

[past + be] + NP + ing + trade + NP

Were the boys trading books?

2. **NP + pres + deliver + NP** \Rightarrow
 Susan delivers the paper \Rightarrow

[pres + do] + NP + deliver + NP
 Does Susan deliver the paper?

3. **NP + [pres + have] + en + be + ing + ring** \Rightarrow
 The phone has been ringing \Rightarrow

[pres + have] + NP + en + be + ing + ring
 Has the phone been ringing?

4. **NP + [past + M] + have + en + be + Loc** \Rightarrow
 The milkman could have been here \Rightarrow

[past + M] + NP + have + en + be + Loc
 Could the milkman have been here?

5. **NP + [pres + cause] + NP** \Rightarrow
 Telegrams cause excitement \Rightarrow

[pres + do] + NP + cause + NP
 Do telegrams cause excitement?

6. **NP + [past + approach] + NP + adj + ly** \Rightarrow
 A rider approached the camp cautiously \Rightarrow

[past + do] + NP + approach + NP + adj + ly
 Did a rider approach the camp cautiously?

7. **NP + [pres + resemble] + NP** \Rightarrow
 This painting resembles that scene \Rightarrow

[pres + do] + NP + resemble + NP
 Does this painting resemble that scene?

8. **NP + [past + have] + en + break + NP** \Rightarrow
 The dog had broken the leash \Rightarrow

[past + have] + NP + en + break + NP
 Had the dog broken the leash?

9. NP + pres + M + go \Rightarrow pres + M + NP + go
You must go Must you go?

10. NP + past + remain + adj \Rightarrow
Mr. Jefferson remained calm
 \Rightarrow
past + do + NP + remain + adj
Did Mr. Jefferson remain calm?

Exercise 5: Pages 30-31

A. 1. The rustlers stampeded the cattle \Rightarrow

Did the rustlers stampede the cattle \Rightarrow

What did the rustlers stampede?

2. Marcie was chewing her nails \Rightarrow

Was Marcie chewing her nails \Rightarrow

What was Marcie chewing?

3. George Washington had crossed the Delaware →
Had George Washington crossed the Delaware →
What had George Washington crossed?
 4. John is quitting the team immediately →
Is John quitting the team immediately →
What is John quitting immediately?
 5. You have a lump on your forehead →
Have you a lump on your forehead →
What have you on your forehead?
 6. The policemen must have seen the accident →
Must the policemen have seen the accident →
What must the policemen have seen?
- B. 1. The children wrecked the automobile →
Did the children wreck the automobile →
What did the children wreck?
2. Philip was showing his creation →
Was Philip showing his creation →
What was Philip showing?
 3. A chipmunk had grabbed the potato chip →
Had a chipmunk grabbed the potato chip →
What had a chipmunk grabbed?
 4. The troubadours played their guitars →
Did the troubadours play their guitars →
What did the troubadours play?
 5. You have finished the test on time →
Have you finished the test on time →
What have you finished on time?
 6. The technician will have completed the report tomorrow →
Will the technician have completed the report tomorrow →
What will the technician have completed tomorrow?

Exercise 6: Page 33

1. yes-or-no transformation (T_Q) #
Did Mrs. Hale design the costumes? \Rightarrow

Attaching wh
*Did Mrs. Hale design what? \Rightarrow

Bringing wh to beginning (T_{wh})
What did Mrs. Hale design?

2. T_Q
Did the girls have a dance \Rightarrow

Attaching wh
Did the girls have what \Rightarrow

T_{wh}
What did the girls have?

3. T_Q
Should the heroine have married the villain? \Rightarrow

wh-attachment
*Should the heroine have married whom? \Rightarrow

T_{wh}
Whom should the heroine have married?

4. T_Q
Did Patrick kiss the Blarney Stone? \Rightarrow

wh-attachment
*Did Patrick kiss what? \Rightarrow

T_{wh}
What did Patrick kiss?

5. T_Q
Did the deer nibble the salt? \Rightarrow

wh-attachment
*Did the deer nibble what? \Rightarrow

T_{wh}
What did the deer nibble?

Allow your students to use T_Q and T_{wh} instead of writing out the names of the transformations if you would like.

6. T_Q

Is she reading Robinson Crusoe? \Rightarrow

* wh-attachment
* Is she reading what? \Rightarrow

T_{wh}
What is she reading?

7. T_Q

Will we watch the broadcast today? \Rightarrow

wh-attachment
* Will we watch what today? \Rightarrow

T_{wh}
What will we watch today?

8. T_Q

Had Seth eaten the evidence? \Rightarrow

wh-attachment
* Seth had eaten what? \Rightarrow

T_{wh}
What had Seth eaten?

9. T_Q

Should they have asked the principal? \Rightarrow

wh-attachment
* Should they have asked whom? \Rightarrow

T_{wh}
Whom should they have asked?

10. T_Q

Did Johnny Appleseed plant the seeds carefully? \Rightarrow

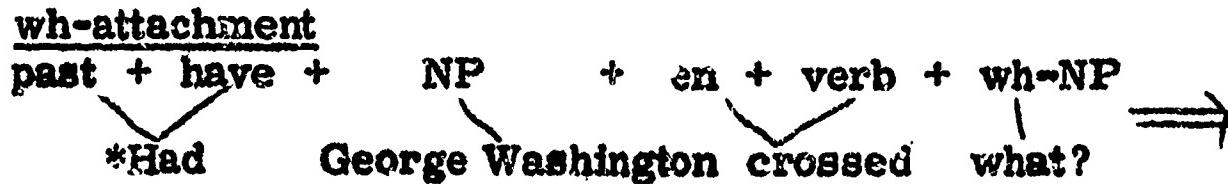
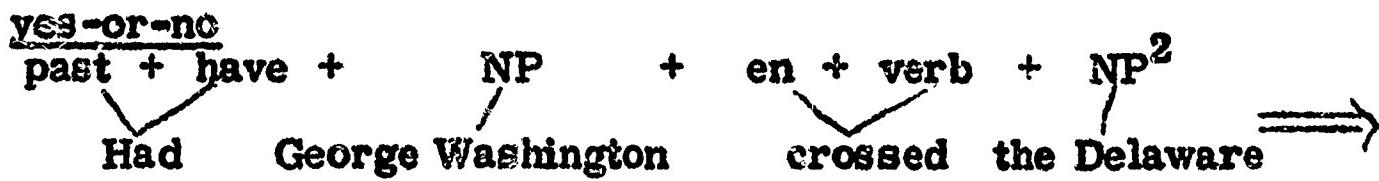
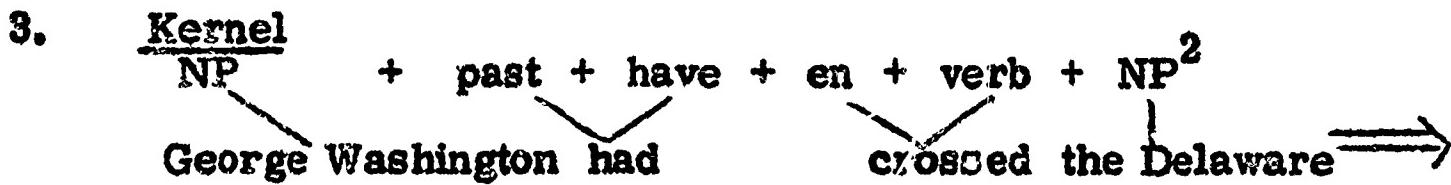
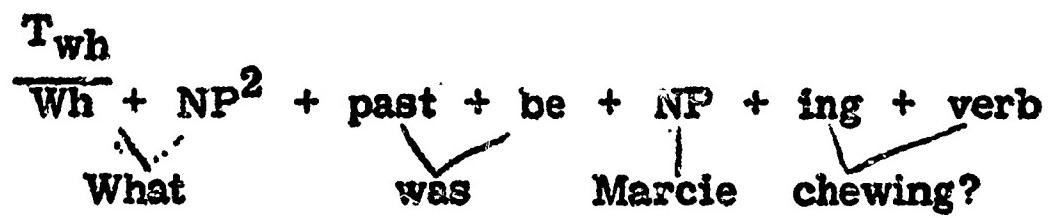
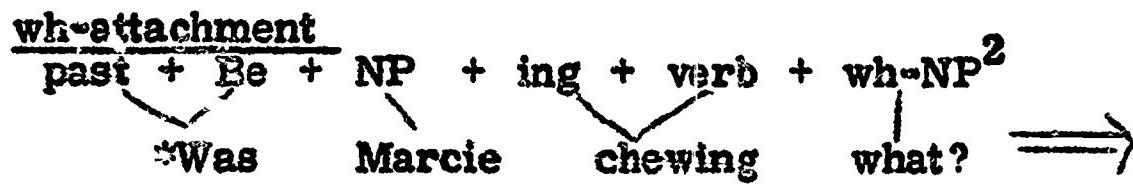
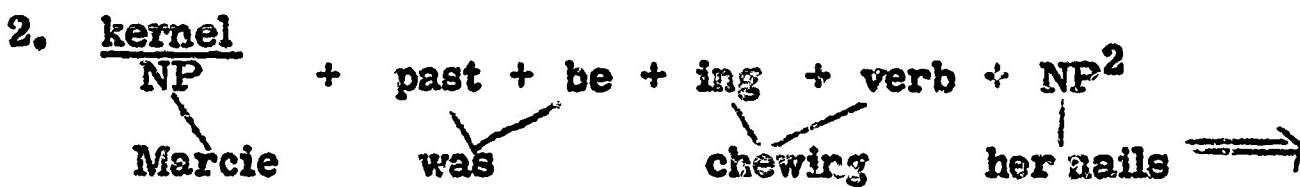
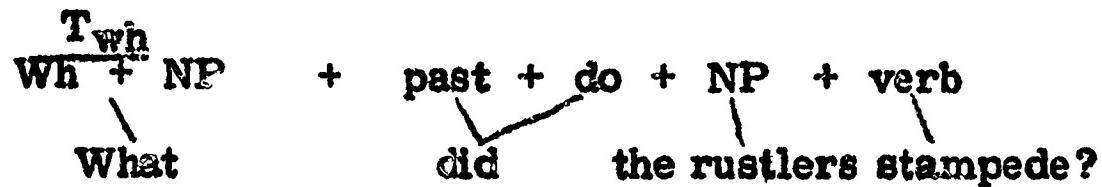
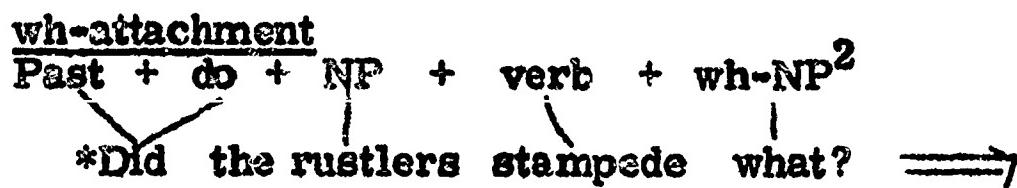
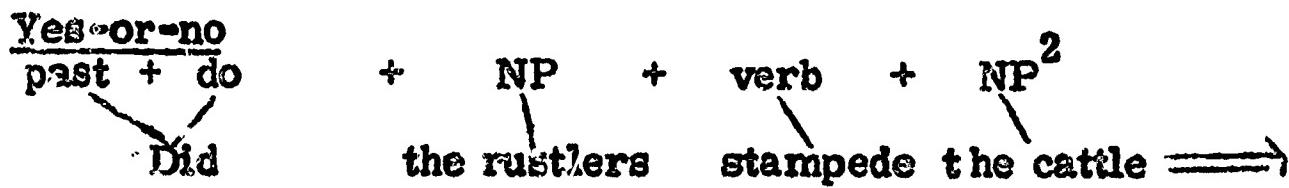
wh-attachment
* Did Johnny Appleseed plant what carefully? \Rightarrow

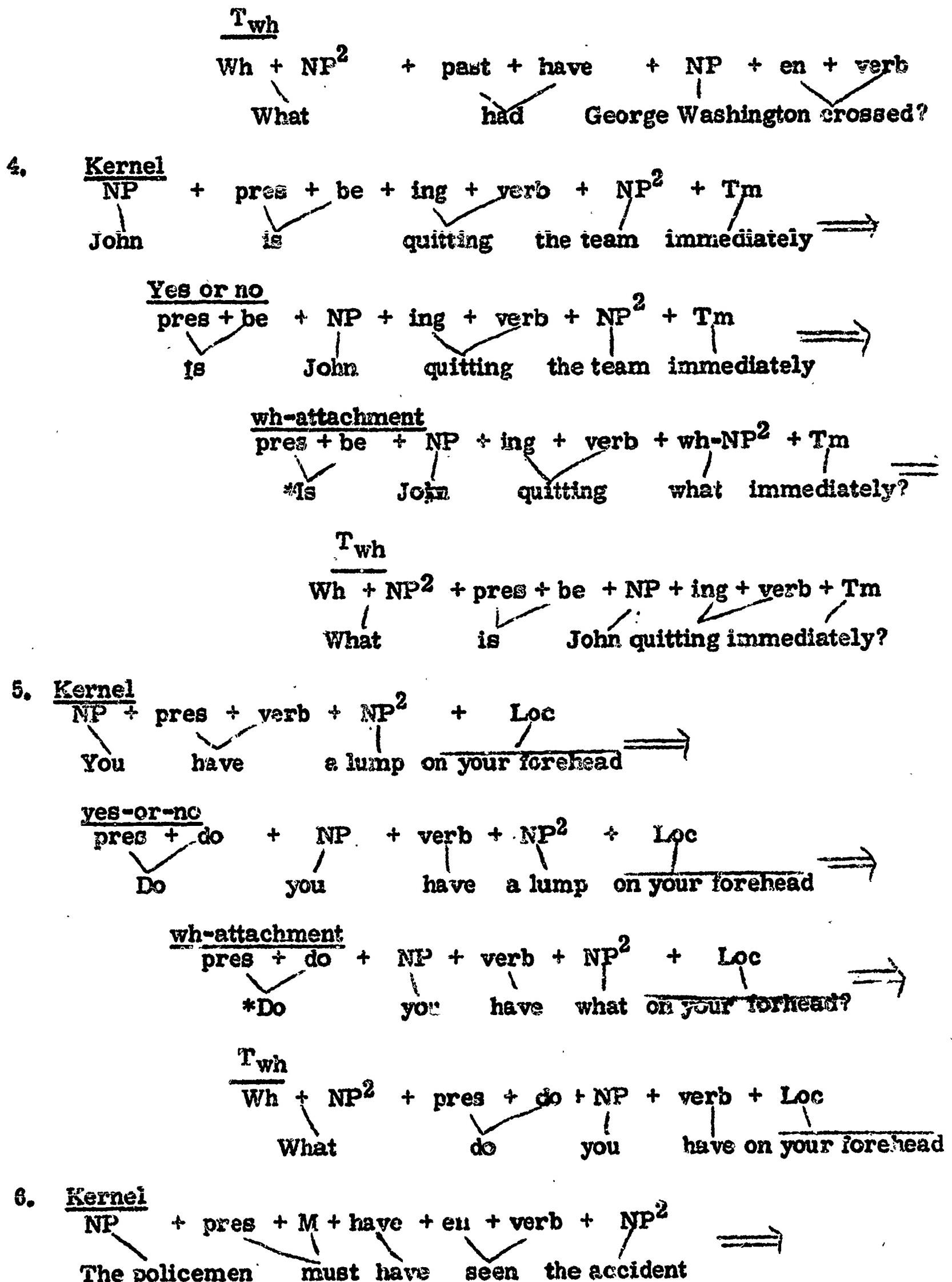
T_{wh}
What did Johnny Appleseed plant carefully?

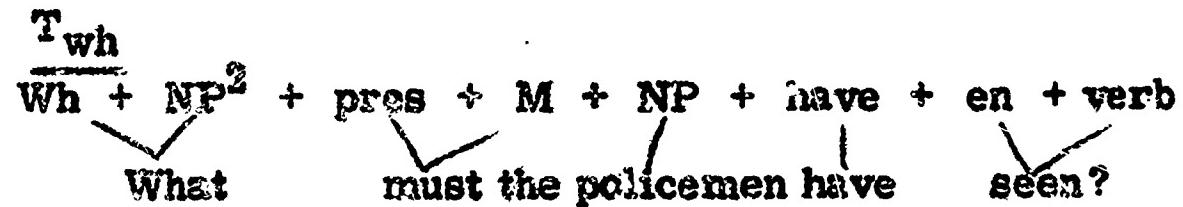
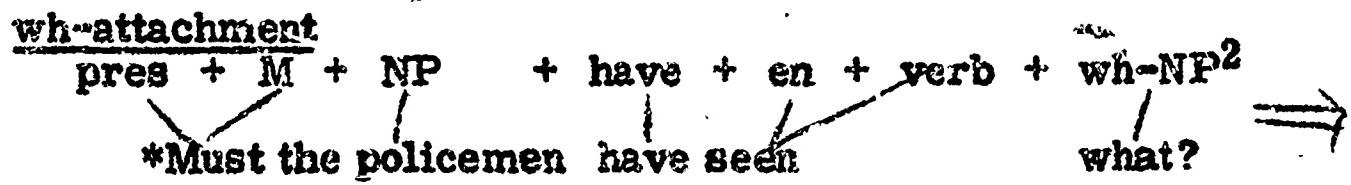
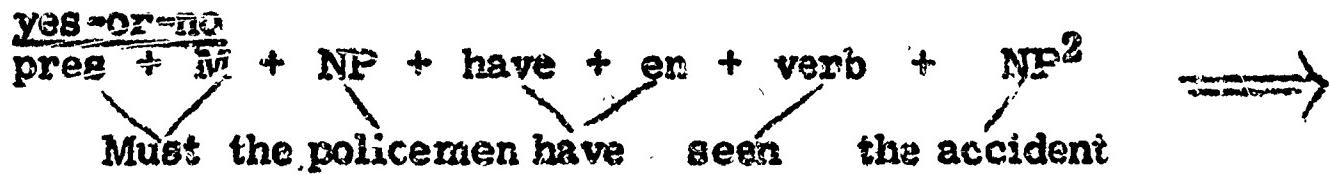
Exercise 7: Page 34

kernel

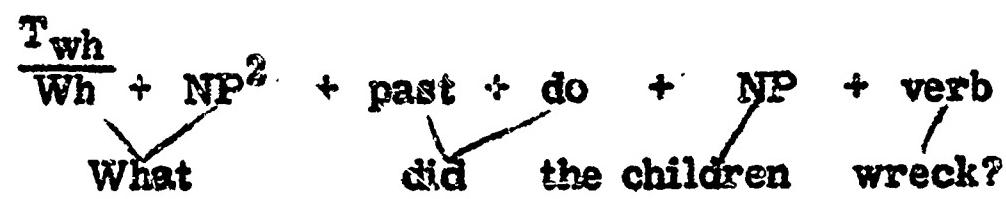
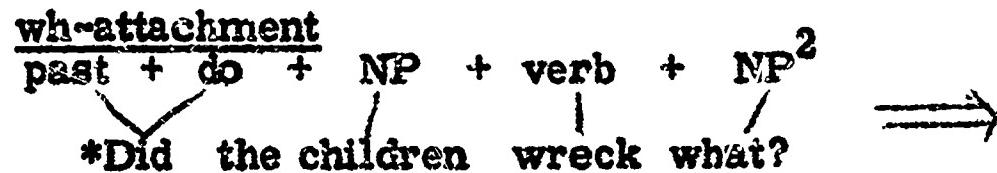
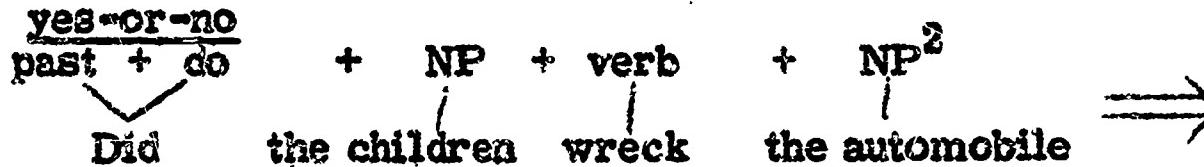
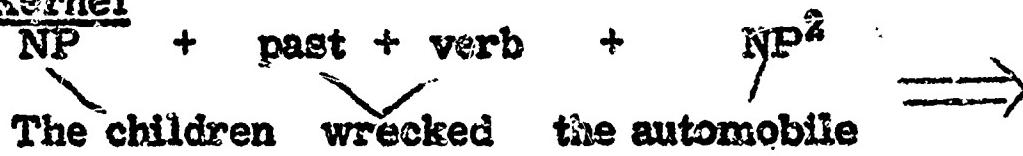
A. 1. NP + past + verb + NP²
The rustlers stamped the cattle \Rightarrow



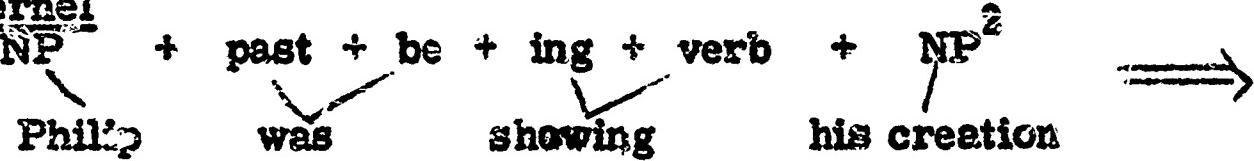


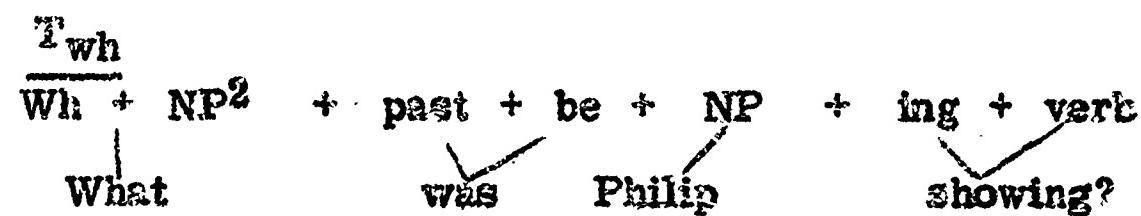


B. 1. Kernel

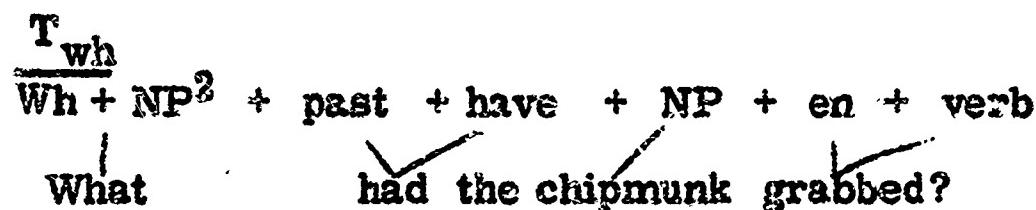
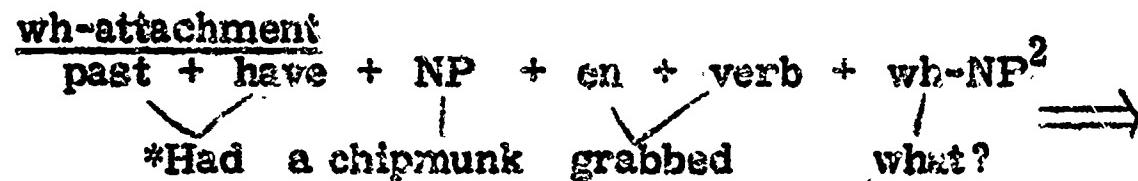
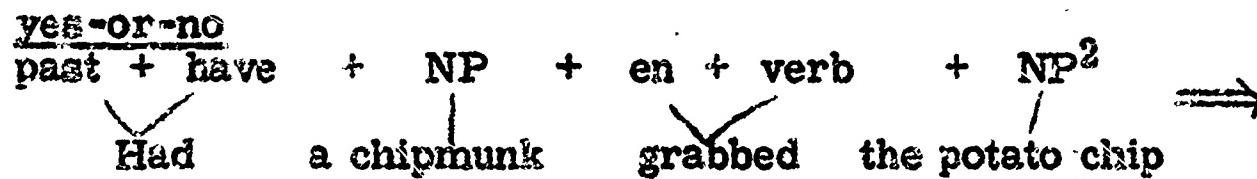
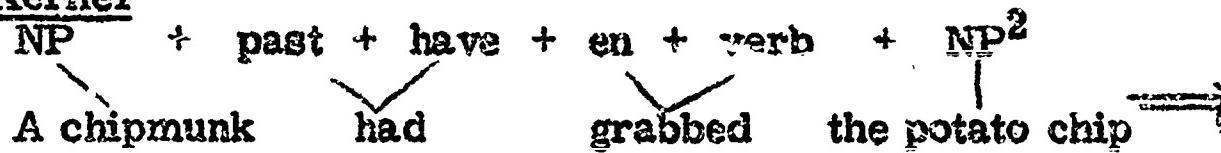


2. Kernel

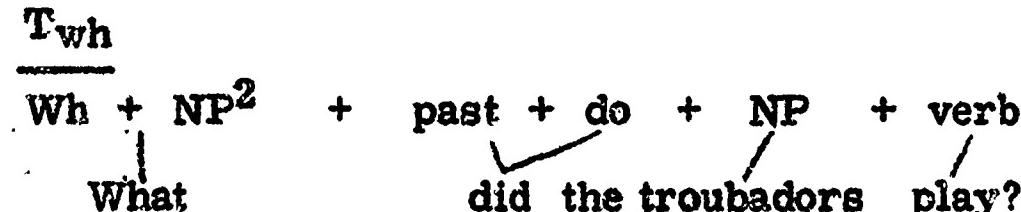
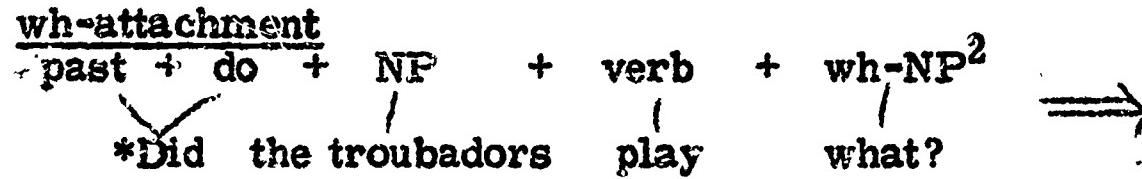
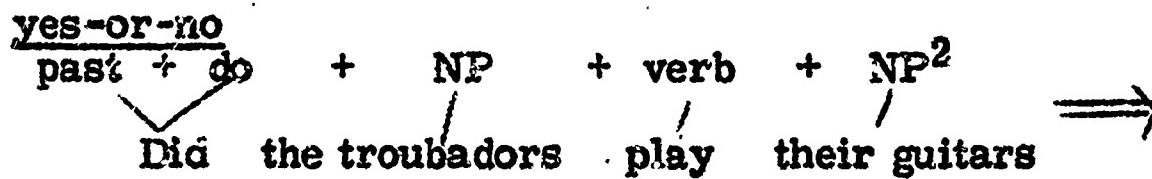
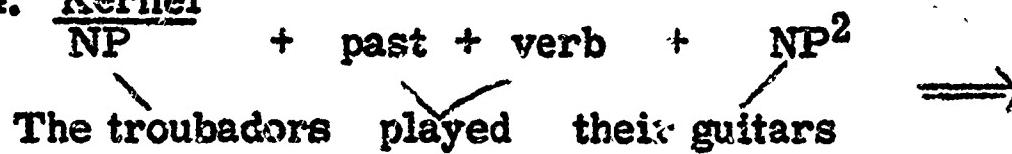




3. Kernel



4. Kernel



5. Kernel



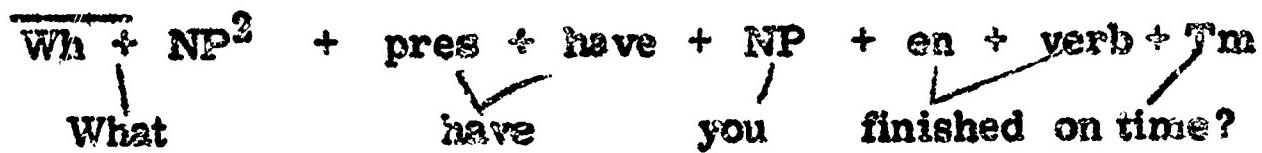
yes-or-no



wh-attachment



T_{wh}



8. Kernel



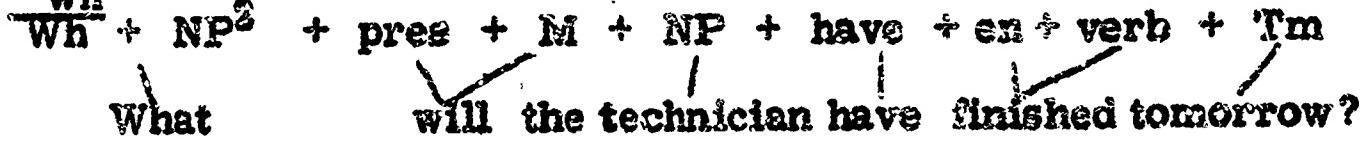
yes-or-no



wh-attachment



T_{wh}



Exercise 8: Page 35

The manner adverbials here are

- A.
1. hurriedly
 2. reluctantly
 3. well
 4. carefully
 5. heavily
 6. lightly
 7. right
 8. quickly
 9. upright
 10. soundly

- B.
1. noiselessly
 2. efficiently
 3. quickly
 4. generously
 5. disgustedly
 6. cautiously
 7. craftily
 8. tightly
 9. sneakily
 10. thoughtlessly

Exercise 8: Page 35

(In some sentences students may find that the phrase "in what manner" produces a more likely question.)

1. How did Hortense eat the halibut?
 2. How did the captain accept the penalty?
 3. How did the actors perform?
 4. How should students have reviewed?
 5. How did it rain yesterday?
 6. How must the cake be beaten?
 7. How does George do everything?
 8. How did the stove heat the room?
 9. How did the policeman jerk the intruder?
 10. How had the players been trained?
-
- E.1. How did the cat spring onto the table?
 2. How has the secretary been working?
 3. How does ice melt in the summer?
 4. How have we been rewarded?
 5. How did Otto eye the stew?
 6. How had Gary seized the reins?
 7. How did he insert the key in the lock?
 8. How did Max clamp the edges together?
 9. How did the lad cross the backyard?
 10. How had the neighbor been playing the radio all night?

Exercise 9: Page 37

(Again students may need to think "in what manner" to see the how replacement in Sentence 1 and 9.)

1. Did the librarian work quietly? \Rightarrow *Did the librarian work how? \Rightarrow How did the librarian work?
2. Will Clarice construct the diagram carefully? \Rightarrow *Will Clarice construct the diagram how? \Rightarrow How will Clarice construct the diagram?
3. Has the gardener pruned the roses severely? \Rightarrow *Has the gardener pruned the roses how? \Rightarrow How has the gardener pruned the roses?
4. Does Paul try hard? \Rightarrow *Does Paul try how? \Rightarrow How does Paul try?
5. Should you speak politely? \Rightarrow *Should you speak how? \Rightarrow How should you speak?
6. Had Minerva approached the spider cautiously? \Rightarrow Had Minerva approached the spider how? \Rightarrow How had Minerva approached the spider?
7. Did Linus surrender the blanket sorrowfully? \Rightarrow *Did Linus surrender the blanket how? \Rightarrow How did Linus surrender the blanket?

8. Did the balloon burst noisily? \Rightarrow *Did the balloon burst how? \Rightarrow
How did the balloon burst?
9. Was the child neglected carelessly? \Rightarrow *Was the child neglected
how? \Rightarrow How was the child neglected?
10. Was the runner gaining steadily? \Rightarrow *Was the runner gaining
how? \Rightarrow How was the runner gaining?

Exercise 10: Page 37

1. $\begin{array}{c} \text{NP} + \text{past} + \text{verb} + \text{Man} \\ | \quad | \quad | \quad | \\ \text{The letter} \quad \text{arrived} \quad \text{promptly} \end{array} \Rightarrow$
- $\begin{array}{c} \text{past} + \text{do} + \text{NP} + \text{verb} + \text{Man} \\ | \quad | \quad | \quad | \quad | \\ \text{Did} \quad \text{the letter} \quad \text{arrive} \quad \text{promptly} \end{array} \Rightarrow$
- $\begin{array}{c} \text{past} + \text{do} + \text{NP} + \text{verb} + \text{wh-Man} \\ | \quad | \quad | \quad | \quad | \\ *\text{Did} \quad \text{the letter} \quad \text{arrive} \quad \text{how?} \end{array} \Rightarrow$
- $\begin{array}{c} \text{Wh} + \text{Man} + \text{past} + \text{do} + \text{NP} + \text{verb} \\ | \quad | \quad | \quad | \quad | \quad | \\ \text{How} \quad \text{did} \quad \text{the letter} \quad \text{arrive?} \end{array}$
2. $\begin{array}{c} \text{NP} + \text{pres} + \text{M} + \text{verb} + \text{NP}^2 + \text{Man} \\ | \quad | \quad | \quad | \quad | \quad | \\ \text{Clarice} \quad \text{will} \quad \text{construct} \quad \text{the diagram} \quad \text{carefully} \end{array} \Rightarrow$
- $\begin{array}{c} \text{pres} + \text{M} + \text{NP} + \text{verb} + \text{NP}^2 + \text{Man} \\ | \quad | \quad | \quad | \quad | \quad | \\ \text{Will} \quad \text{Clarice} \quad \text{construct} \quad \text{the diagram} \quad \text{carefully} \end{array} \Rightarrow$
- $\begin{array}{c} \text{pres} + \text{M} + \text{NP} + \text{verb} + \text{NP}^2 + \text{wh-Man} \\ | \quad | \quad | \quad | \quad | \quad | \\ *\text{Will} \quad \text{Clarice} \quad \text{construct} \quad \text{the diagram} \quad \text{how?} \end{array} \Rightarrow$
- $\begin{array}{c} \text{Wh} + \text{Man} + \text{pres} + \text{M} + \text{NP} + \text{verb} + \text{NP}^2 \\ | \quad | \quad | \quad | \quad | \quad | \quad | \\ \text{How} \quad \text{will} \quad \text{Clarice} \quad \text{construct} \quad \text{the diagram} \end{array}$
3. $\begin{array}{c} \text{NP} + \text{pres} + \text{have} + \text{en} + \text{verb} + \text{NP}^2 + \text{Man} \\ | \quad | \quad | \quad | \quad | \quad | \quad | \\ \text{The gardener} \quad \text{has} \quad \text{pruned} \quad \text{the roses} \quad \text{severely} \end{array} \Rightarrow$
- $\begin{array}{c} \text{pres} + \text{have} + \text{NP} + \text{en} + \text{verb} + \text{NP}^2 + \text{Man} \\ | \quad | \quad | \quad | \quad | \quad | \quad | \\ \text{Has} \quad \text{the gardener} \quad \text{pruned} \quad \text{the roses} \quad \text{severely} \end{array} \Rightarrow$

pres + have + NP + en + verb + NP² + wh-Man \Rightarrow
*Has the gardener pruned the roses how?

Wh + Man + pres + have + NP + en + verb + NP²
How has the gardener pruned the roses?

4. NP + pres + verb + Man
Paul tries hard \Rightarrow

pres + do + NP + verb + Man
Does Paul try hard \Rightarrow

pres + do + NP + verb + wh-Man
*Does Paul try how? \Rightarrow

Wh + Man + pres + do + NP + verb
How does Paul try? \Rightarrow

5. NP + past + M + verb + Man
You should speak politely \Rightarrow

past + M + NP + verb + Man
Should you speak politely \Rightarrow

past + M + NP + verb + wh-Man
*Should you speak how? \Rightarrow

Wh + Man + past + M + NP + verb
How should you speak? \Rightarrow

6. NP + past + have + en + verb + NP² + Man
Minerva had approached the spider cautiously \Rightarrow

past + have + NP + en + verb + NP² + Man
Had Minerva approached the spider cautiously \Rightarrow

past + have + NP + en + verb + NP² + wh-Man
*Had Minerva approached the spider how? \Rightarrow

Wh + Man + past + have + NP + en + verb + NP²
How had Minerva approached the spider?

7. NP + past + verb + NP² + Man
Linus surrendered the blanket sorrowfully

past + do + NP + verb + NP² + Man
Did Linus surrender the blanket sorrowfully

past + do + NP + verb + NP² + wh-Man
*Did Linus surrender the blanket how?

Wh + Man + past + do + NP + verb + NP²
How did Linus surrender the blanket?

8. NP + past + verb + Man
The balloon burst noisily

past + do + NP + verb + Man
Did the balloon burst noisily

past + do + NP + verb + wh-Man
*Did the balloon burst how?

Wh + Man + past + do + NP + verb
How did the balloon burst?

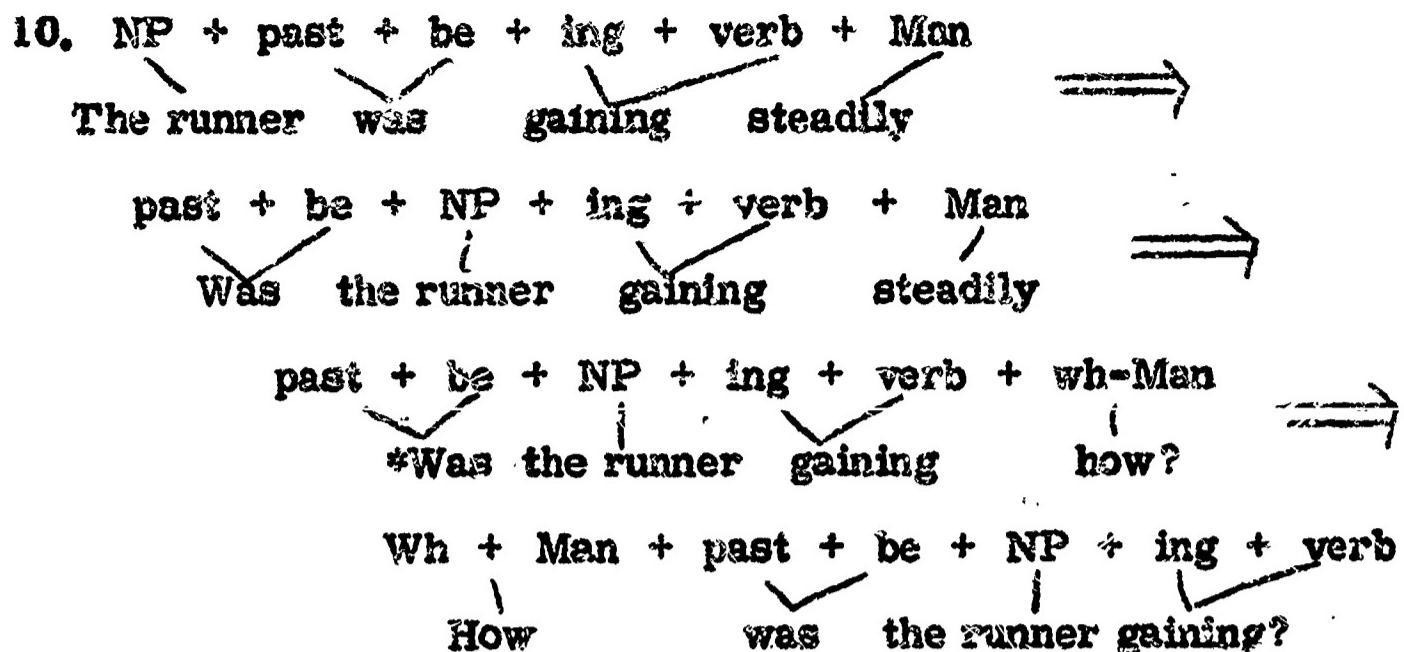
9. (This is a passive construction.)

NP + past + be + en + verb + Man
The child was neglected carelessly

past + be + NP + en + verb + Man
Was the child neglected carelessly

past + be + NP + en + verb + wh-Man
*Was the child neglected how?

Wh + Man + past + be + NP + en + verb
How was the child neglected?



Exercise 11: Page 38

Answers will vary.

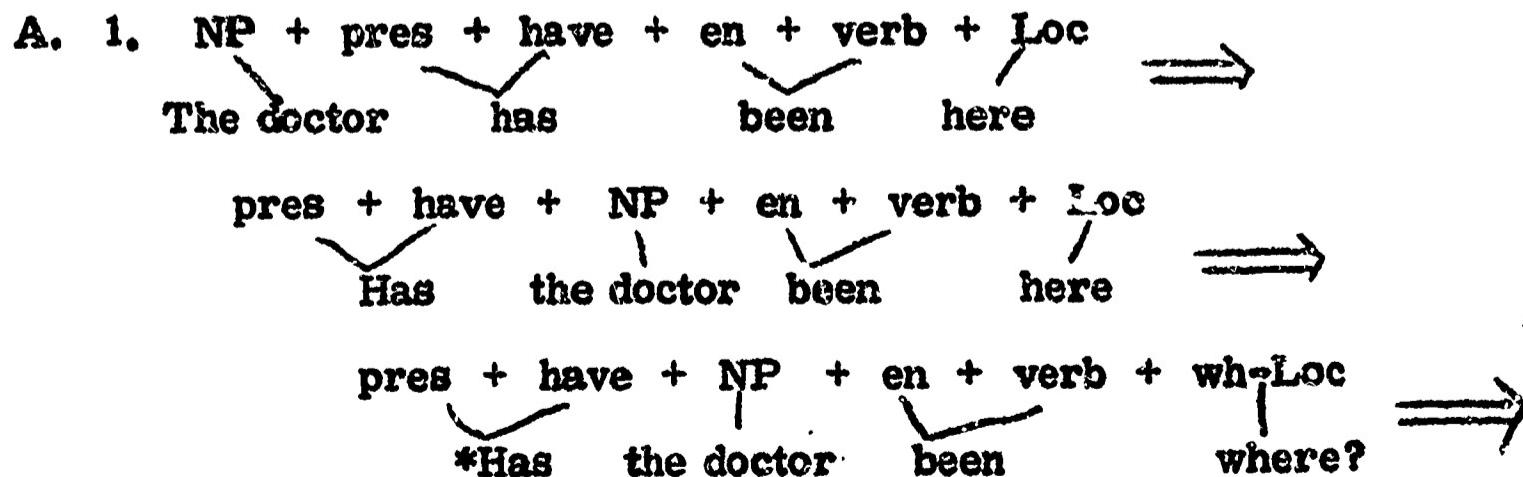
Exercise 12: Page 39

- A. 1. Where has the doctor been?
2. Where might she have been yesterday?
3. Where did Jack stay?
4. Where was the principal?
5. Where can he remain?
6. Where must the fire have been?
7. Where did he build a fire?
8. Where did he run quickly?
9. Where does Jack sing?
10. Where did we take our books?

B. Answers will vary but might be similar to these:

1. We went to Australia for a vacation.
2. The puppy is happiest in the mud.
3. William goes to the University of Oregon.
4. Joan is going to Portland.
5. Ken is in the stable.

Exercise 13: Page 40



Wh + Loc + pres + have + NP + en + verb
Where has the doctor been?

2. NP + past + M + have + en + verb + Loc + Tm
She might have been away yesterday \Rightarrow

past + M + NP + have + en + verb + Loc + Tm
Might she have been away yesterday \Rightarrow

past + M + NP + have + en + verb + Wh-Loc + Tm
*Might she have been where yesterday? \Rightarrow

Wh + Loc + past + M + NP + have + en + verb + Tm
Where might she have been yesterday?

3. NP + past + verb + Loc
Jack stayed upstairs \Rightarrow

past + do + NP + verb + Loc
Did Jack stay upstairs \Rightarrow

past + do + NP + verb + wh-Loc
*Did Jack stay where? \Rightarrow

Wh + Loc + past + do + NP + verb
Where did Jack stay?

4. NP + past + verb + Loc
The principal was out \Rightarrow

past + verb + NP + Loc
Was the principal out \Rightarrow

past + verb + NP + wh-Loc
*Was the principal where? \Rightarrow

Wh + Loc + past + verb + NP
Where was the principal?

5. NP + pres + M + verb + Loc
He can remain there \Rightarrow

pres + M + NP + verb + Loc \Rightarrow
Can he remain there

pres + M + NP + verb + wh-Loc \Rightarrow
*Can he remain where?

Wh + Loc + pres + M + NP + verb
Where can he remain?

6. NP + pres + M + have + en + verb + Loc
The fire must have been near \Rightarrow

pres + M + NP + have + en + verb + Loc \Rightarrow
Must the fire have been near

pres + M + NP + have + en + verb + wh-Loc \Rightarrow
*Must the fire have been where?

Wh + Loc + pres + M + NP + have + en + verb
Where must the fire have been?

Exercise 13: Page 40

The Loc element may vary in students' answers.

B. 1. Have you put the bucket there?
You have put the bucket there. (or someplace)

2. Does the water go uphill?
The water goes uphill. (or someplace)

3. Were the doughnuts here?
The doughnuts were here. (or someplace)

4. Are the fish biting in the lake?
The fish are biting in the lake. (or someplace)

5. Did the rainbow appear in the sky? (or someplace)
The rainbow appeared in the sky.

Exercise 14: Page 41

1. When will we meet?
2. When do the students issue the school paper?
3. When did Dolly withdraw her name?
4. When will they be vacationing abroad?
5. When did Kern become captain?
6. When should you do it?
7. When must the plane have vanished?

Exercise 15: Page 42

- A. 1. NP + past + verb + NP + Tm
Davie ran a mile last night \Rightarrow
- past + do + NP + verb + NP + Tm
Did Davie run a mile last night \Rightarrow
- past + do + NP + verb + NP + wh-Tm
*Did Davie run a mile when? \Rightarrow
- Wh + Tm + past + do + NP + verb + NP
When did Davie run a mile? \Rightarrow
2. NP + pres + M + verb + NP + Tm
We will finish the work in the morning \Rightarrow
- pres + M + NP + verb + NP + Tm
Will we finish the work in the morning \Rightarrow
- pres + M + NP + verb + NP + wh-Tm
*Will we finish the work when? \Rightarrow
- wh + Tm + pres + M + NP + verb + NP
When will we finish the work? \Rightarrow
3. NP + past + verb + NP + Tm
Skidmore caught thirty mice last month \Rightarrow
- past + do + NP + verb + NP + Tm
Did Skidmore catch thirty mice last month \Rightarrow

past + do + NP + verb + NP + wh-Tm
↓ | ↓ | ↓ |
*Did Skidmore catch thirty mice when? \Rightarrow

Wh + Tm + past + do + NP + verb + NP
↓ |
When did Skidmore catch thirty mice?

4. NP + pres + have + en + be + ing + verb + NP + Tm
↓ | ↓ |
Philip has been picking beans all day \Rightarrow

pres + have + NP + en + be + ing + verb + NP + Tm
↓ |
Has Philip been picking beans all day \Rightarrow

pres + have + NP + en + be + ing + verb + NP + wh-Tm
↓ |
*Has Philip been picking beans when? \Rightarrow

Wh + Tm + pres + have + NP + en + be + ing + verb + NP
↓ |
When has Philip been picking beans? \Rightarrow

5. NP + pres + be + ing + verb + NP + Tm
↓ |
The captain is meeting us at three o'clock \Rightarrow

pres + be + NP + ing + verb + NP + Tm
↓ |
Is the captain meeting us at three o'clock \Rightarrow

pres + be + NP + ing + verb + NP + wh-Tm
↓ |
*Is the captain meeting us when? \Rightarrow

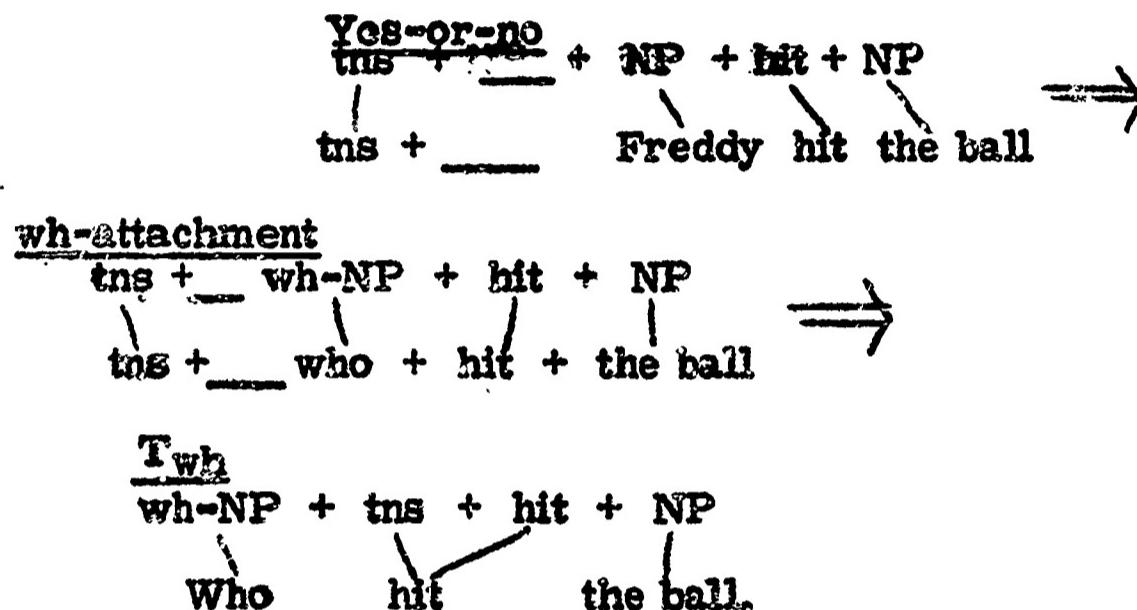
Wh + Tm + pres + be + NP + ing + verb + NP
↓ |
When is the captain meeting us? \Rightarrow

R. Because students must add a time adverbial their answers will obviously vary.

1. Will Steve return tomorrow? Steve will return tomorrow.
2. Did you see Mary yesterday? You saw Mary yesterday.
3. Were the Kimballs coming at noon? The Kimballs were coming at noon.
4. Are you finishing the course now? You are finishing the course now.
5. Has he called his mother today? He has called his mother today.

Page 43

The subject replacement involves the ordering of the transformation. In other words, in the formation of this question the order in which the transformations are applied becomes especially important. The do-support must not be added immediately after the yes-or-no transformation as we have done before, because in the case of the subject question alone it ceases to be necessary. Thus:



Some students may find this difficult at this point and you will want to decide whether to teach the subject replacement at this time or leave it until later.

Page 44: Class Exercise

You will want to use these questions as a basis for class discussion.

1. The first question is a yes-or-no question
2. 1) The class is holding the dance in the auditorium.
2) The team will arrive on time.
3) The girl has made the refreshments.
4) Joe answered the questions honestly.
3. Yes. The second question in each group is built on the first.
4. 1) Where
2) When
3) What
4) How
5. 1) Where replaces in the auditorium.
2) When replaces on time.
3) What replaces the refreshments.
4) How replaces honestly.

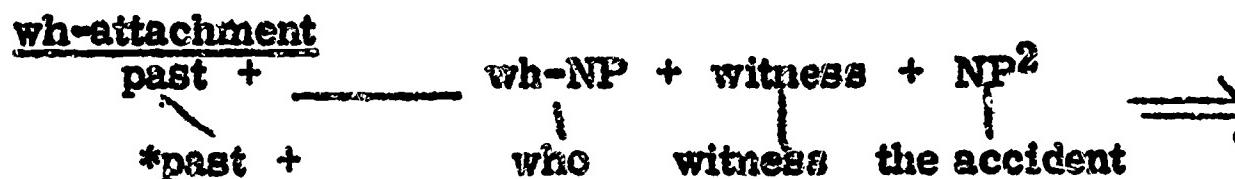
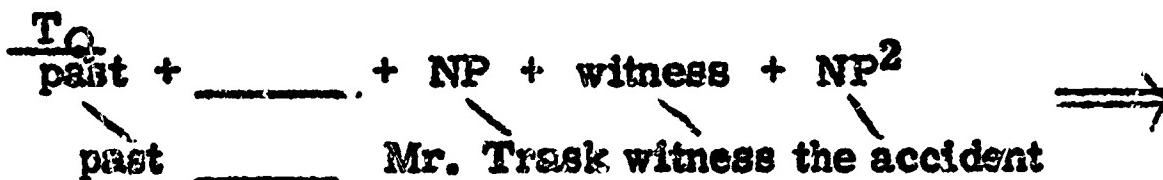
6. We call it wh-attachment.
7. The question word is the first word in the sentence.

Page 45:

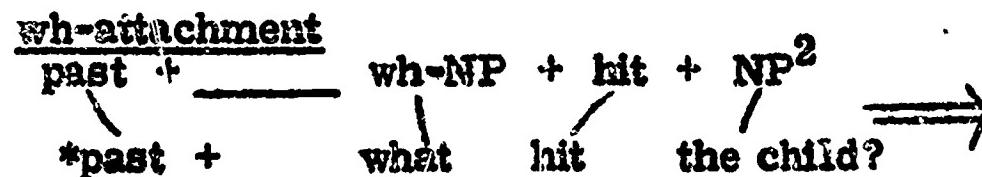
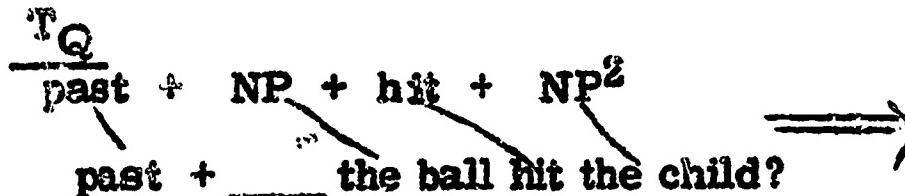
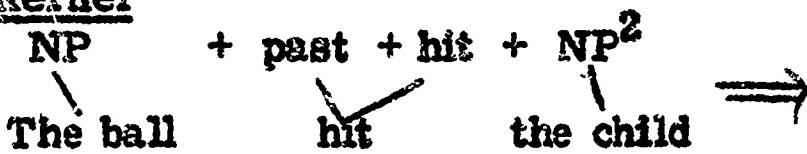
If you use this section be sure to discuss carefully in class the paragraph at the top of page 45, trying to get your students to see for themselves the relation between the subject replacement and the other kinds.

Exercise 16: Page 49

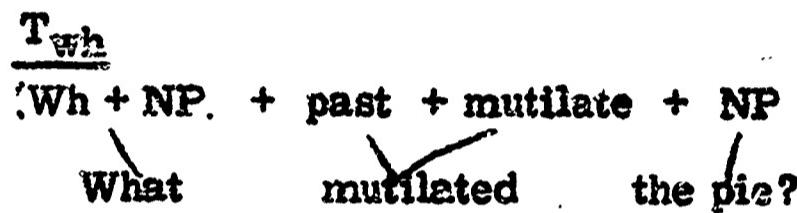
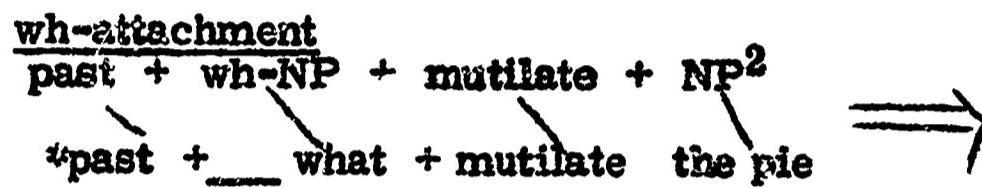
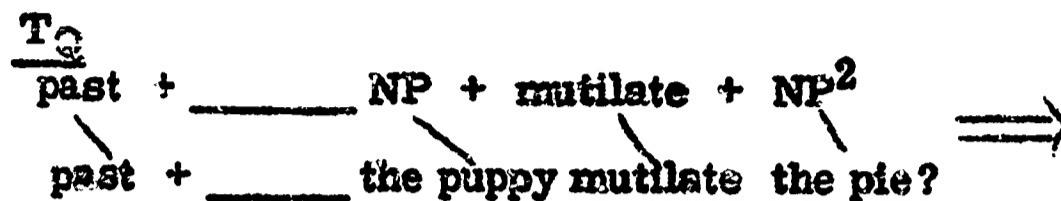
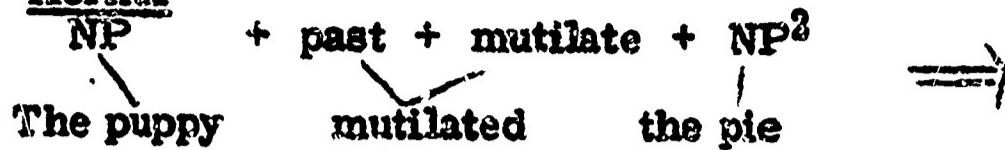
1. Kernel



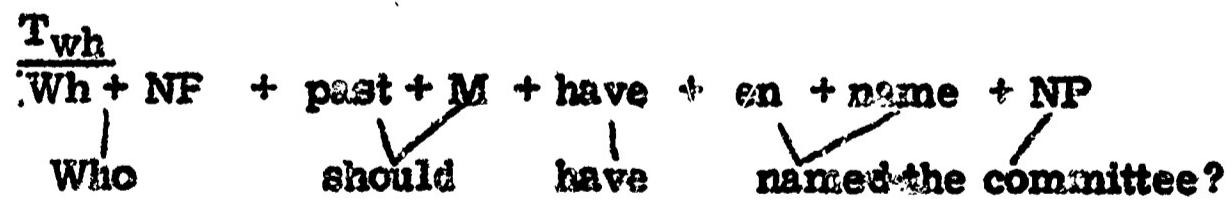
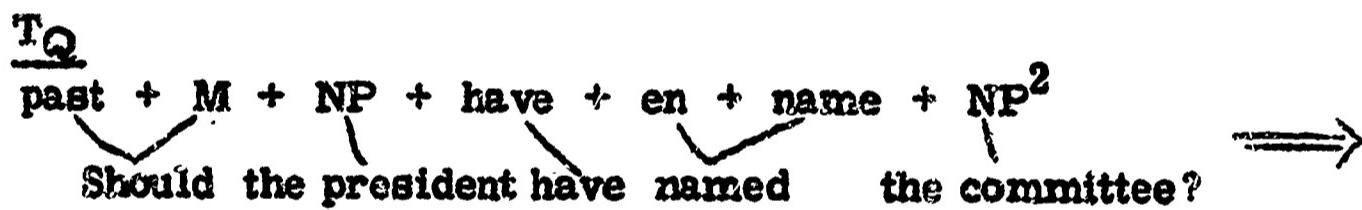
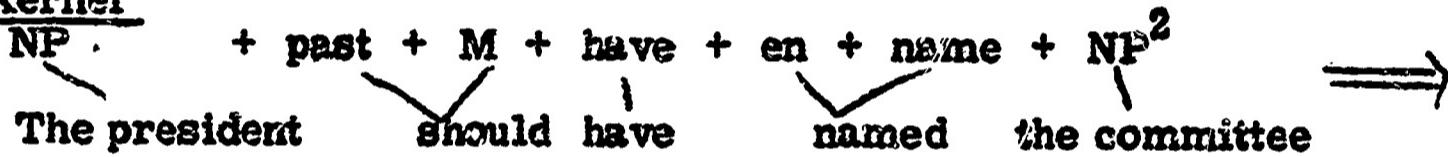
2. Kernel



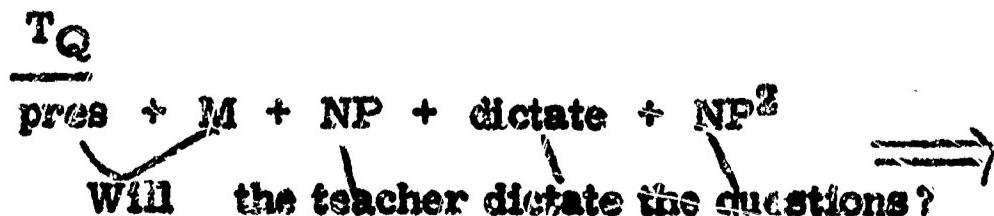
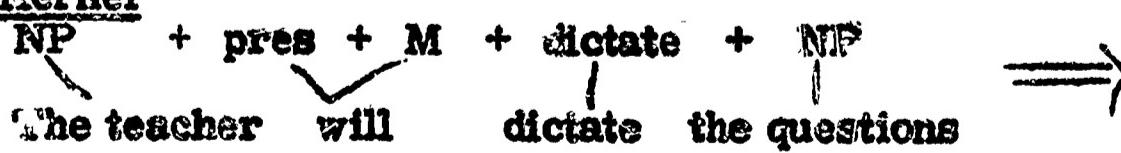
3. Kernel



4. Kernel



5. Kernel



wh-attachment

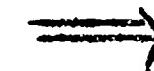
pres + M + wh-NP + dictate + NP²

*Will

who

dictate

the questions?



T_{wh}

Wh + NP + pres + M + dictate + NP²

Who

will

dictate

the questions?

6. Kernel

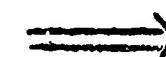
NP + pres + be + ing + block + NP²

A piano

is

blocking

the doorway



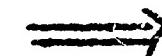
T_Q

pres + be + NP + ing + block + NP²

Is a piano

blocking

the doorway?



wh-attachment

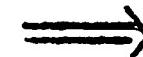
pres + be + wh-NP + ing + block + NP²

*Is

what

blocking

the doorway?



T_{wh}

Wh + NP + pres + be + ing + block + NP²

What

is

blocking

the doorway?



7. Kernel

NP + pres + M + be + adj

Dictators must

be careful



T_Q

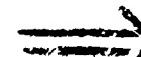
pres + M + NP + be + adj

Must

dictators

be

careful?



wh-attachment

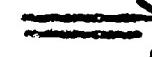
pres + M + wh-NP + be + adj

*Must

who

be

careful?



T_{wh}

Wh + NP + pres + M + be + adj

Who

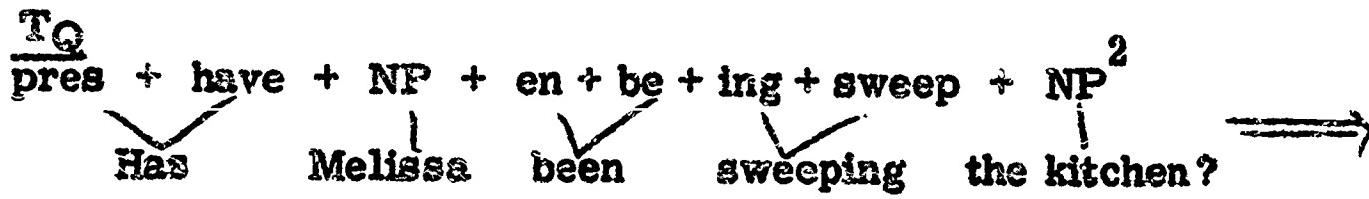
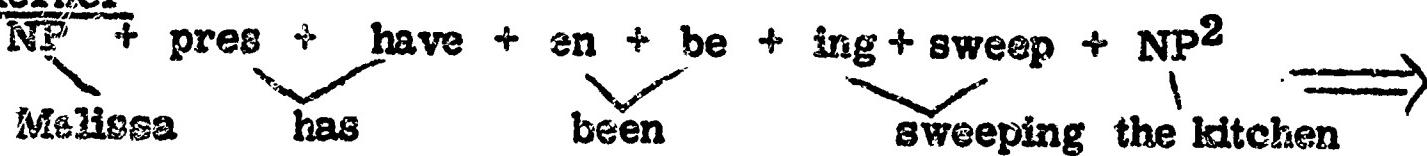
must

be

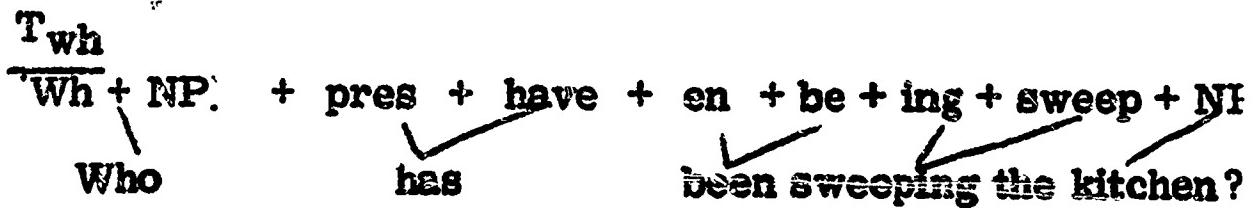
careful?



8. Kernel

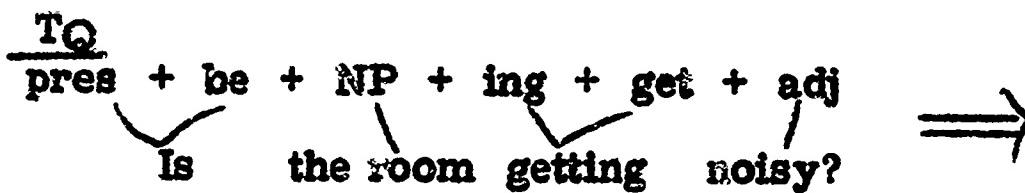


wh-attachment

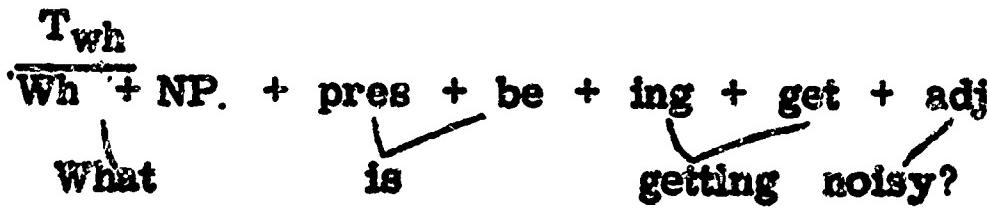
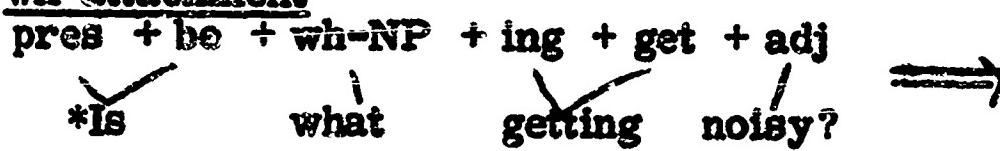


9. NP + pres + be + ing + get + adj

The room is getting noisy \Rightarrow

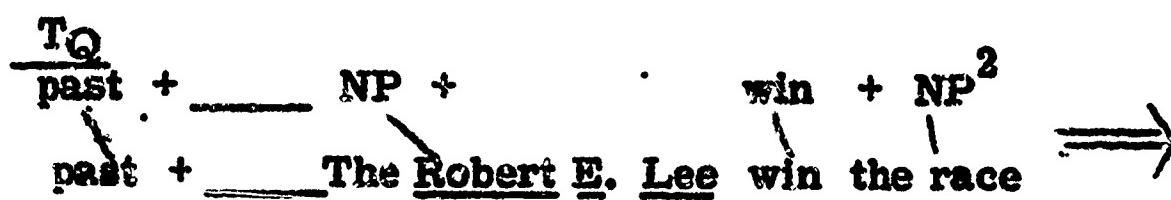


wh-attachment

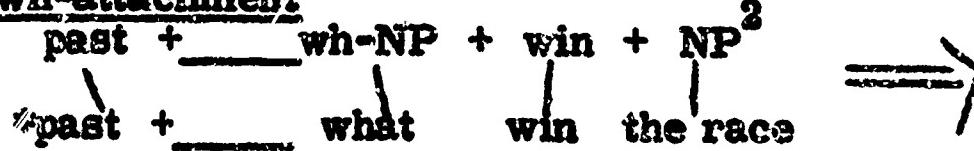


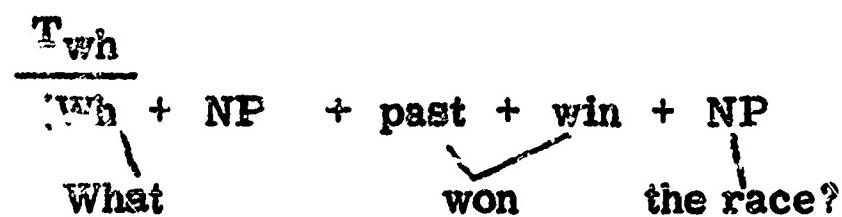
10. NP + past + win + NP

The Robert E. Lee won the race \Rightarrow



wh-attachment





Page 50: Questions for review

1. Question transformations operate on basic kernel strings to form various kinds of questions.
2. This transformation is called T_Q. In it tense and either M, have, or be--or simply tense alone--change places with the subject NP. If tense alone changes places, it then becomes necessary to add do for it to attach to. (Tns + John caught the fish? Tns + do John catch the fish?)
3. If the verb is Be, Tns + Be moves to the front. The verb Be has the quality of simple inversion.
$$\text{You are ill} \Rightarrow \text{Are you ill?}$$
4. If there is neither M, have, be or the verb Be, do must be added.
5. The three transformations which produce the object replacement are T_Q (yes-or-no), wh-attachment, and T_{wh} (which moves the question word to the front of the sentence).
6. Wh-attachment simply means attaching wh to the underlying symbol of an element in the sentence. This element then becomes a question word.
$$\text{Wh-NP} \Rightarrow \begin{cases} \text{who(m)} \\ \text{what} \end{cases} \quad \text{or that}$$
$$\text{wh-Man} \Rightarrow \text{how}; \quad \text{wh-Loc} \Rightarrow \text{where};$$
$$\text{wh-Tm} \Rightarrow \text{when.}$$
7. Wh means the word it is attached to is going to become a question word.
8. The T_{wh} transformation brings the element with wh attached to the front of its string.
9. The how question is formed by applying T_Q, then wh-attachment and finally T_{wh}. All other questions are formed in the same way. In the how question wh is attached to the manner adverbial. In the time question wh is attached to Tm. In the place question, it is attached to Loc? In the subject replacement it is attached to the subject NP.
10. All questions are related by going first through the yes-or-no transformation.

Exercise for review: Page 50

Answers will vary but might be similar to these examples:

1. Wh + Tm + tns + do + NP + Vtr + NP²
When did Jane bring the flowers?

2. Wh + Loc + tns + be + NP
Where is Joe?

3. Tns + M + NP + have + en + Vmid + NP²
Would Jennie have had the measles?

4. Wh + Man + tns + do + NP + Vtr + NP²
How does Janet like ice cream?

5. Wh + NP + tns + Vin + Man
Who reacted suddenly?

6. Wh + NP² + tns + M + NP + Vtr
Whom should Joan love?

7. Tns + be + NP + Pr
Is Stella pretty?

B.

1. Wh + Tm + tns + M + NP + Vlnk + Pr
When must a story ring true?

2. Wh + NP + tns + be + Pr
Who is Sylvia?

3. Tns + do + NP + Vmid + NP²
Does Bill have a cold?

4. Tns + be + NP + ing + Vtr + NP²
Is Joan eating an apple?

5. Tns + have + NP + en + Vtr + NP³
Has Jack eaten the apple?

6. Wh + NP + tns + have + en + Vtr + NP²
Who has eaten the apple?

Exercise for review: Pages 51-52

A.

1. NP + past + be + ing + verb + NP²
Beatrice was wearing jeans \Rightarrow

TQ (yes-or-no)
past + be + NP + ing + verb + NP²
Was Beatrice wearing jeans?

2. NP + past + have + en + verb + NP² + Tm
The professor had returned the exams yesterday. \Rightarrow

TQ (yes-or-no)
past + have + NP + en + verb + NP² + Tm
Had the professor returned the exams yesterday?

3. NP + past + verb + Loc
The children stayed indoors \Rightarrow

TQ
past + do + NP + verb + Loc
Did the children stay indoors \Rightarrow

wh-attachment
past + do + NP + verb + wh-Loc
*Did the children stay where? \Rightarrow

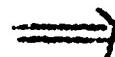
T_{wh}
Wh + Loc + past + do + NP + verb
Where did the children stay?

4. NP + past + verb + NP²
The pygmy bought a toothbrush \Rightarrow

T_Q yes-or-no

past + do + NP + verb + NP²

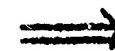
Did the pygmy buy a toothbrush



wh-attachment

past + do + NP + verb + wh-NP²

*Did the pygmy buy what?



T_{wh}

Wh + NP² + past + do + NP + verb

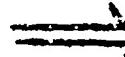
What

did

the pygmy buy?

5. NP + past + verb + NP + Man

The inmate ate the soup noisily



T_Q (yes-or-no)

past + do + NP + verb + NP² + Man

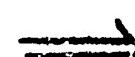
Did the inmate eat the soup noisily



wh-attachment

past + do + NP + verb + NP² + wh-Man

*Did the inmate eat the soup how?



T_{wh}

Wh + Man + past + do + NP + verb + NP²

How

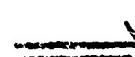
did

the inmate eat

the soup?

6. NP + pres + M + verb + Man

The choir can sing beautifully



T_Q (yes-or-no)

pres + M + NP + verb + Man

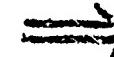
Can the choir sing beautifully



wh-attachment

pres + M + NP + verb + wh-Man

*Can the choir sing how?



T_{wh}

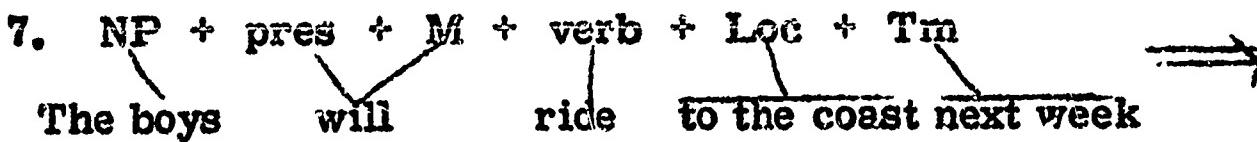
Wh + Man + pres + M + NP + verb

How

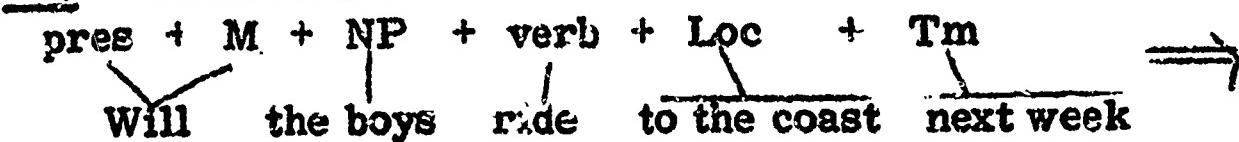
can

the choir

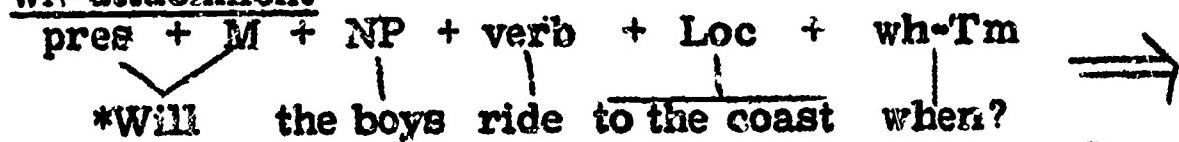
sing?



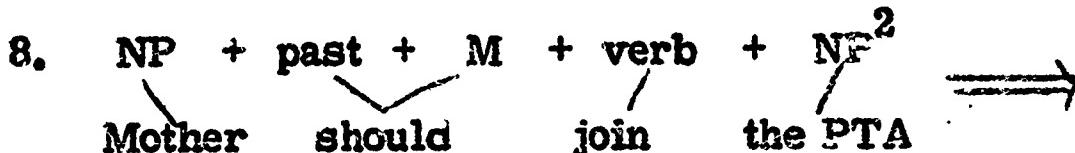
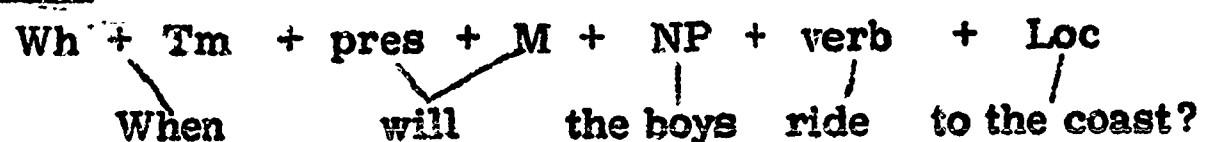
T_Q (yes-or-no)



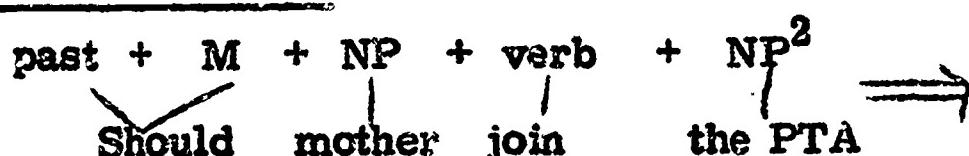
wh-attachment



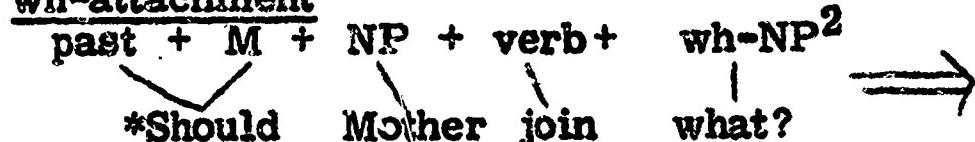
T_{wh}



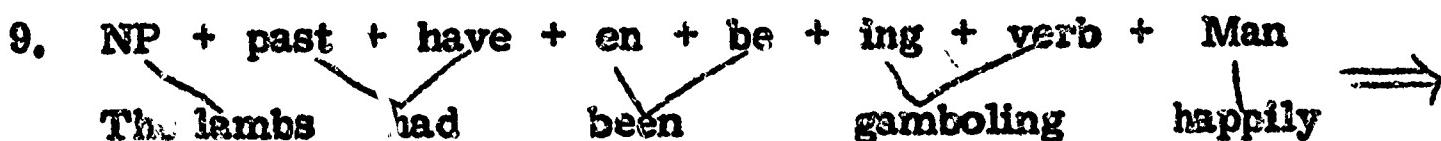
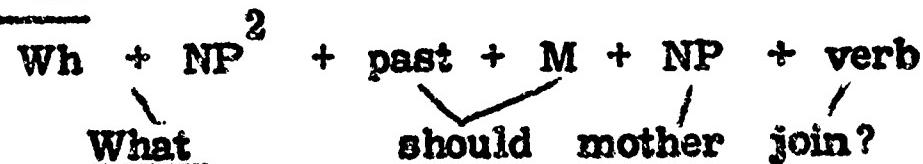
T_Q (yes-or-no)



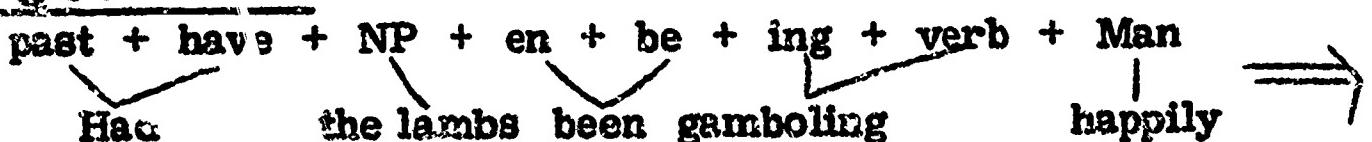
wh-attachment

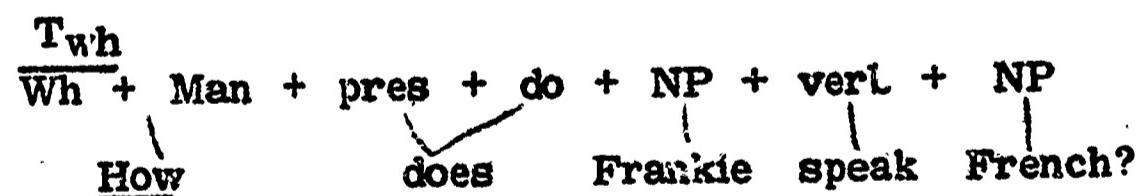
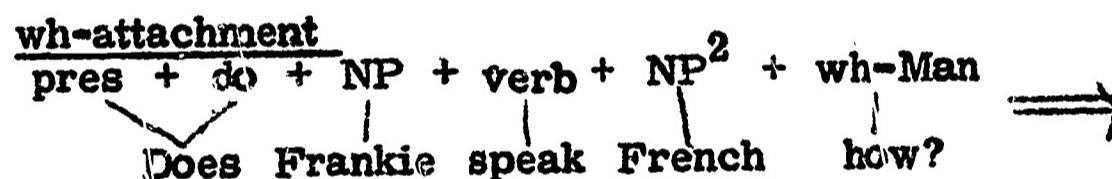
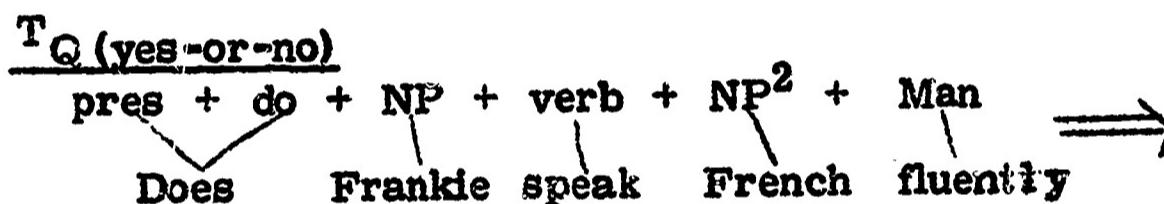
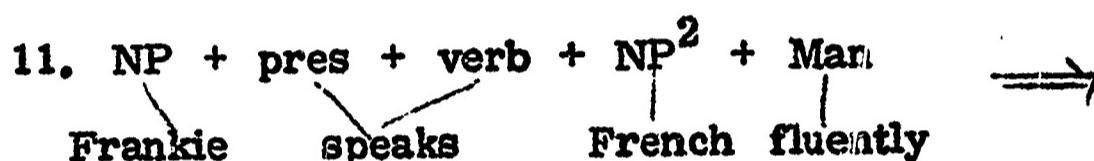
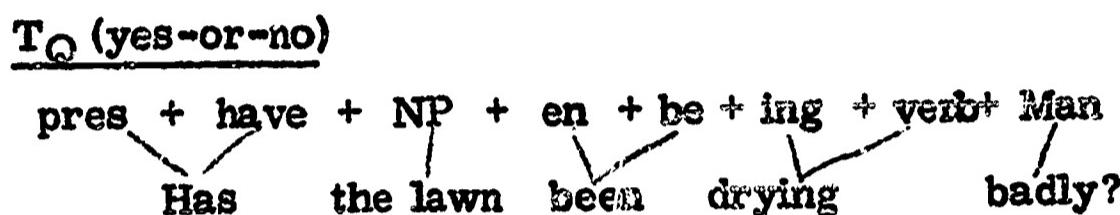
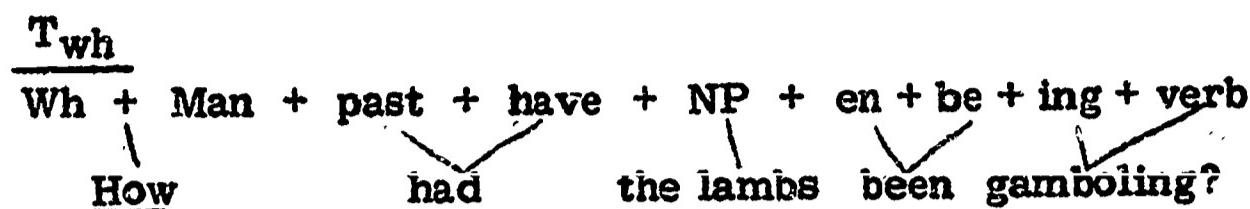
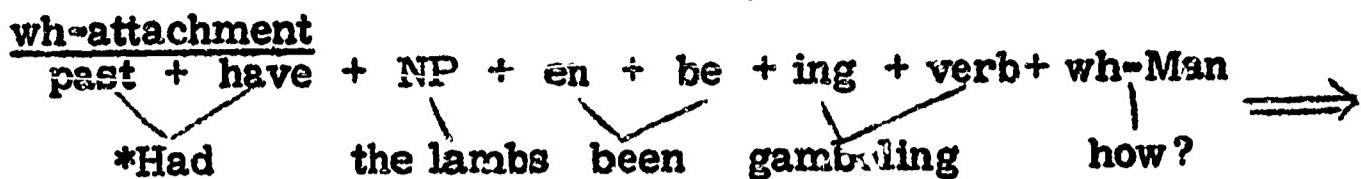


T_{wh}



T_Q 9(yes-or-no)





12. NP + pres + Be + Loc
The basket is there \Rightarrow

TQ (yes-or-no)
pres + Be + NP + Loc
is the basket there \Rightarrow

wh-attachment

pres + be + NP + wh-loc
*Is the basket where?

T_{wh}
Wh + Loc + pres + Be + NP
Where is the basket?

B. 1. NP + past + be + ing + verb + NP
Katy was drinking her milk \Rightarrow

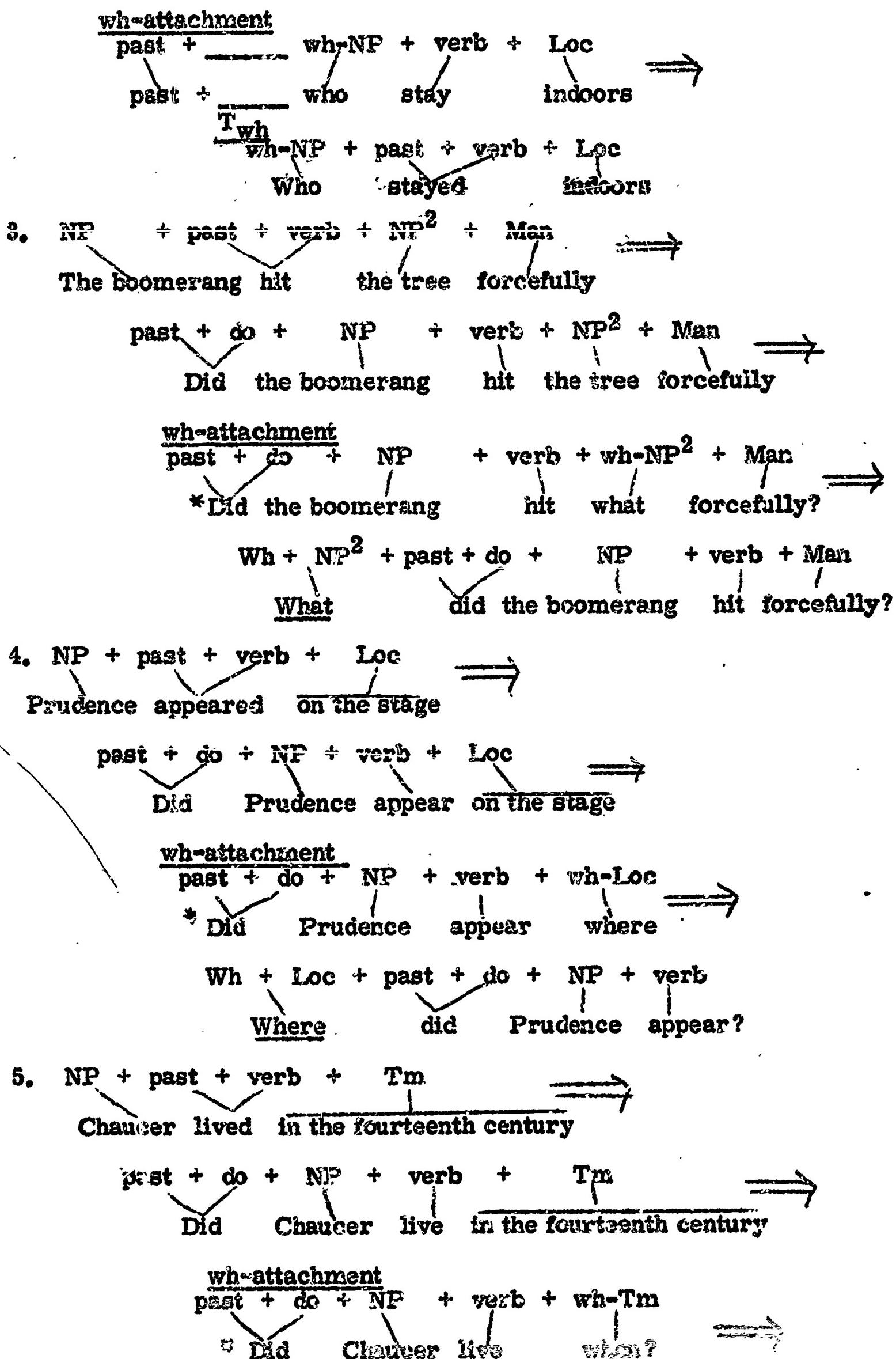
T_Q
past + be + NP + ing + verb + NP²
Was Katy drinking her milk \Rightarrow

wh-attachment
past + be + wh-NP + ing + verb + NP²
Was who drinking her milk? \Rightarrow

T_{wh}
Wh + NP + past + be + ing + verb + NP
Who was drinking her milk?

2. NP + past + verb + Loc
The children stayed indoors \Rightarrow

T_Q
past + NP + verb + Loc
past + the children stay indoors \Rightarrow



Wh + Tm + past + do + NP + verb
When did Chaucer live?

6. NP + past + M + have + en + verb + Loc
Grandfather could have remained outside =

past + M + NP + have + en + verb + Loc
Could grandfather have remained outside =

wh-attachment

past + M + NP + have + en + verb + wh-Loc
* Could grandfather have remained where? =

Wh + Loc + past + M + NP + have + en + verb
Where could grandfather have remained?

7. NP + pres + M + verb + NP² + for the billfold (This is a pres-
positional phrase of rea-
son. You may want to let
your students put "Reason" in
the symbol string,

T_Q
pres + M + NP + verb + NP² + Reason
Will Peter give money for the billfold → sented this
or you may let them simply write "for the billfold," sinc
we haven't yet pre-
this kind of adverb.)

wh-attachment
pres + M + NP + verb + wh-NP² - Reason
* Will Peter give what for the billfold →

T_{wh}

Wh + NP² + pres + M + NP + verb + Reason
What will Peter give for the billfold

8. NP + pres + M + verb + NP + Loc

Helen will have dinner in the Spaceneedle →

Wh + NP + pres + M + verb + NP + Loc
Who will have dinner in the Spaceneedle? →

9. NP + past + verb + Man + Loc
The strikers paced steadily up and down

TQ
past + do + NP + verb + Man + Loc
Did the strikers pace steadily up and down

wh-attachment
past + do + NP + verb + wh-Man + Loc
* Did strikers pace how: up and down
Wh + Man + past + do + NP + verb + Loc
How did the strikers pace up and down